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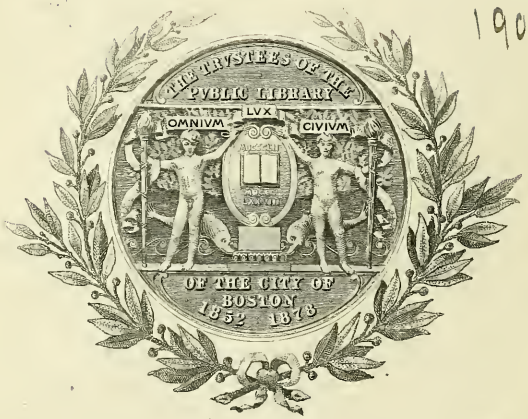

GIVEN BY

Boston. Public Works Department

ENGINEERING DEPARTMENT

THIRTY-EIGHTH ANNUAL REPORT

OF THE

CITY ENGINEER

BOSTON

FOR THE YEAR 1904

Compliments of

William Jackson,

City Engineer.

BOSTON
MUNICIPAL PRINTING OFFICE
1905

ENGINEERING DEPARTMENT

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Boston. Public Works Department
Oct. 30. 1911

1904

ENGINEERING DEPARTMENT, CITY HALL,
BOSTON, February 1, 1905.

HON. PATRICK A. COLLINS,

Mayor of the City of Boston:

SIR, — The following report of the expenses and operation of this department for the year ending January 31, 1905, is submitted:

The duties of the City Engineer include the designing and superintending of the construction of new bridges, retaining walls, city wharves, and such other public engineering works as the City Council may authorize; the making of such survey, plans, estimates, statements and descriptions, and taking such levels as the City Government or any of its departments or committees may require; the custody of all surveys and plans relating to the laying out, locating anew, altering, widening, or discontinuing of streets, and the new engineering construction for all departments of the city. He must be consulted on all work where the advice of a civil engineer would be of service. The office of the City Engineer was established by ordinance on October 31, 1850, and by chapter 449 of the Acts of 1895.

The following is a statement of engineering expenses from February 1, 1904, to January 31, 1905:

Amount of department appropriation for 1904–1905	$80,000 00
Amount expended for 1904–1905	79,667 47
Unexpended balance	$332 53

STATEMENT OF EXPENDITURES, DEPARTMENT APPROPRIATIONS.
(Auditor's Report, page 62.)

Salaries:		
Engineer, William Jackson	$6,000 00	
Assistant Engineer, draughtsmen and assistants	65,818 75	
		$71,818 75
Travelling expenses		2,022 62
Instruments, tools and repairs		1,508 66
Printing		1,435 62
Stationery		556 11
Telephone service		499 79
Horse-keeping		422 00
Books and papers		353 26
Blue printing and photographing		266 45
Washing and small supplies		249 55
Binding and plans		185 39
Rent of office		166 65
Furniture and office expenses		128 03
Messenger service		31 55
Typewriting		17 50
Carting		5 54
Total		$79,667 47

ABOLISHMENT OF GRADE CROSSINGS.

Austin Street — Charlestown.

Expenditures from February 1, 1904, to January 31, 1905:

Item of expenditure:

Land damages	$12,847 49

Blue Hill Avenue and Oakland Street.

Expenditures from February 1, 1904, to January 31, 1905:

Items of expenditure:

Land damages	$29,308 50	
Appraisal services	3,506 60	
Auditing	80 48	
		$32,895 58
Expended previous to 1904		78,985 54
		$111,881 12

Cambridge and Perkins Streets — Charlestown.

Expenditures from February 1, 1904, to January 31, 1905:

Item of expenditure:	
Land damages	$2,175 00
Expended previous to 1904	73,425 15
	$75,600 15

Congress Street.

Expenditures from February 1, 1904, to January 31, 1905:

Items of expenditure:		
Appraisal services	$100 00	
Auditing	79 28	
		$179 28
Expended previous to 1904		1,230,610 27
		$1,230,789 55

Dorchester Avenue.

Expenditures from February 1, 1904, to January 31, 1905:

Items of expenditure:		
Land damages	$681 43	
Appraisal services	491 15	
Auditing	83 70	
		$1,256 28
Expended previous to 1904		997,775 76
		$999,032 04
Cr. sale of land and buildings		978 09
		$998,053 95

ATLANTIC AVENUE BRIDGE.

Expenditures from February 1, 1904, to Jauuary 31, 1905:

Items of expenditure:	
Engineering and inspection .	$9,304 11
Pier O	5,810 65
Carried forward . . .	$15,114 76

Brought forward . . .	$15,114 76	
Setting pier blocks . . .	1,675 82	
Additional cut granite . .	1,400 00	
Six piers	749 11	
Printing stock for blue prints .	247 80	
Boston approach . . .	142 85	
Advertising	84 46	
Printing	51 32	
		$19,466 12
Expended previous to 1904		210,950 74
		$230,416 86

BROADWAY BRIDGE, REBUILDING.

Appropriation		$370,000 00
Expenditures from February 1, 1904, to January 31, 1905:		
Items of expenditure:		
Bridge superstructure . .	$14,929 34	
Flooring	14,332 75	
Paving blocks	9,163 85	
Engineering and inspection .	6,320 72	
Sidewalks	4,858 87	
Temporary bridge . . .	2,143 58	
Iron fence — South Boston end,	1,985 00	
Boston approach . . .	1,756 82	
Gates and posts for draw .	1,350 00	
Fender pier — south side . .	913 79	
Hard-pine timber . . .	867 61	
Fence over Lehigh street . .	235 00	
Safety treads	198 34	
Printing	184 06	
Waterproofing	152 94	
Roofing house on bridge . .	135 00	
Bolting steel plates on girders .	48 82	
Advertising	48 60	
	$59,625 09	
Expended previous to 1904 . .	270,702 65	
		330,327 74
Balance February 1, 1905		$39,672 26

MALDEN BRIDGE.

Expended previous to 1904	$136,991 93

NORTHERN AVENUE AND SLEEPER STREET.

Expenditures from May 1, 1904, to January 31, 1905:

Items of expenditure:		
Engineering	$2,765 60	
Borings	724 14	
Rent of office	271 48	
Advertising	8 50	
		$3,769 72

SHAWMUT AVENUE BRIDGE.

Expenditures from February 1, 1904, to January 31, 1905:

Items of expenditure:		
Bridge superstructure	$11,966 97	
Paving	3,047 66	
Engineering and inspection	2,391 64	
North and south parapet stones,	1,344 94	
Iron railing	513 76	
Printing	69 41	
Advertising	36 24	
		$19,370 62

BRIDGES.

The annual inspection of all highway and foot-bridges has been made, together with special examinations when notified by the Superintendent of Streets of the progress of repairs.

The management of all the bridges and draws between Cambridge and Boston, by the Acts of 1898, chapter 467, is vested in a board of two commissioners, which has charge of the following eight bridges, viz.: Cambridge street, Canal, Essex street, Harvard, North Harvard street, Prison Point, West Boston, and Western avenue to Cambridge; one-half the cost of the maintenance of these bridges is paid by each of these cities.

In the list of bridges those marked with a star (*) are over navigable waters, and are each provided with a draw, the openings in which are shown in a table in Appendix A. The widths of the openings have been measured for this report.

I. — BRIDGES WHOLLY SUPPORTED BY BOSTON.

Agassiz road, in the Fens.
Allston bridge, over Boston & Albany Railroad, Brighton.
Arborway bridge, in Arborway, over Stony brook.
Ashland street, over Providence Division, N. Y., N. H. & H. R.R., West Roxbury.

Athens street, over Midland Division, N. Y., N. H. & H. R.R.
Audubon road, over Boston & Albany Railroad.
Beacon street, over outlet to the Fens.
Beacon street, over Boston & Albany Railroad.
Bennington street, over Boston, Revere Beach & Lynn Railroad.
Berkeley street, over Boston & Albany Railroad.
Bernier-street foot-bridge, in the Riverway.
Berwick-park foot-bridge, over Providence Division, N. Y., N. H. & H. R.R.
Blakemore street, over Providence Division, N. Y., N. H. & H. R.R.
Bolton street, over Midland Division, N. Y., N. H. & H. R.R.
Boylston street, in the Fens.
Boylston street, over Boston & Albany Railroad.
Bridle path, over Muddy river, in the Riverway.
* Broadway, over Fort Point channel.
Broadway, over Boston & Albany Railroad.
Brookline avenue, over Boston & Albany Railroad.
Brooks street, over Brooks street, Brighton.
Byron street, over Boston, Revere Beach & Lynn Railroad.
* Castle Island foot-bridge, from Marine park, South Boston, to Castle Island.
Charlesgate, over Boston & Albany Railroad, in the Fens.
Charlesgate, over Ipswich street, in the Fens.
* Charlestown bridge, from Boston to Charlestown.
* Chelsea bridge, South, over South Channel of Mystic river.
* Chelsea street, from East Boston to Chelsea.
Circuit drive, over Scarboro' pond, in Franklin park.
Columbia road, over Old Colony Division, N. Y., N. H. & H. R.R.
Columbia road, over Shoreham street.
Columbus avenue, over Boston & Albany Railroad.
* Commercial point, or Tenean, Dorchester.
Commonwealth avenue, in the Fens.
* Congress street, over Fort Point channel.
Cornwall street, over Stony brook, West Roxbury.
Cottage Farm bridge, over Boston & Albany Railroad, Brighton.
Cottage-street foot-bridge, over flats, East Boston.
Dartmouth street, over Boston & Albany Railroad and Providence Division, N. Y., N. H. & H. R.R.
* Dorchester avenue, over Fort Point channel.
* Dover street, over Fort Point channel.
Ellicott arch, in Franklin park.
Fen bridge, in the Fens.

Ferdinand street, over Boston & Albany Railroad.
Forest Hills entrance, in Franklin park.
Gainsborough-street foot-bridge, over Providence Division, N. Y., N. H. & H. R.R.
Gold street, over Midland Division, N. Y., N. H. & H. R.R.
Huntington avenue, over Boston & Albany Railroad.
Ipswich street, over Waterway, in the Fens.
Irvington-street foot-bridge, over Providence Division, N. Y., N. H. & H. R.R.
* L street, over Reserved channel, South Boston.
Leverett-pond foot-bridge, in Leverett park.
Linden Park street, over Stony brook.
* Malden bridge, from Charlestown to Everett.
Massachusetts avenue, over Boston & Albany Railroad.
Massachusetts avenue, over Providence Division, N. Y., N. H. & H. R.R.
* Meridian street, from East Boston to Chelsea.
* Mount Washington avenue, over Fort Point channel.
Neptune road, over Boston, Revere Beach & Lynn Railroad.
Newton street, over Providence Division, N. Y., N. H. & H. R.R.
Public Garden foot-bridge.
Scarboro'-pond foot-bridge, in Franklin park.
Shawmut avenue, over Boston & Albany Railroad and Providence Division, N. Y., N. H. & H. R.R.
Southampton street, east of Midland Division, N. Y., N. H. & H. R.R.
Southampton street, west of Midland Division, N. Y., N. H. & H. R.R.
Stony brook, in the Fens.
Summer street, over A street.
Summer street, over B street.
Summer street, over C street.
*Summer street, over Fort Point channel.
*Warren bridge, Boston to Charlestown.
West Rutland-square foot-bridge, over Providence Division, N. Y., N. H. & H. R.R.
Winthrop, from Breed's Island to Winthrop.
Wood Island park foot-bridge, over Boston, Revere Beach & Lynn Railroad.

II. — BRIDGES OF WHICH BOSTON SUPPORTS THE PART WITHIN ITS LIMITS.

Bellevue street, over Muddy river, in the Riverway.
Bernier-street foot-bridge, over Muddy river, in the Riverway.

Brookline avenue, over Muddy river, in the Riverway.
Central avenue, from Dorchester to Milton.
*Chelsea bridge, North, over North channel, Mystic river.
*Granite bridge, from Dorchester to Milton.
Huntington avenue, over Muddy river, in the Riverway.
Longwood avenue, over Muddy river, in the Riverway, and over Boston & Albany Railroad.
Milton bridge, from Dorchester to Milton.
*Neponset bridge, from Dorchester to Quincy.
*North Beacon street, from Brighton to Watertown.
Spring street, from West Roxbury to Dedham.
*Western avenue, from Brighton to Watertown.

III. — Bridges of Which Boston Pays a Part of the Cost of Maintenance.

Albany street, over Boston and Albany Railroad freight tracks.
Ashmont street and Dorchester avenue, over Old Colony Division, N. Y., N. H. & H. R.R.
Blue Hill avenue, over Midland Division, N. Y., N. H. & H. R.R., Mattapan.
Boston street, over Old Colony Division, N. Y., N. H. & H. R.R
*Cambridge street, from Brighton to Cambridge.
Cambridge street, over Boston & Maine and Boston & Albany Railroads.
*Canal bridge, from Boston to Cambridge.
Chelsea Bridge, over the Boston & Maine Railroad.
Dorchester avenue, over Old Colony Division, N. Y., N. H. & H. R.R.
* Essex street, from Brighton to Cambridge.
Everett street, over Boston & Albany Railroad, Brighton.
* Harvard bridge, from Boston to Cambridge.
Harvard street, over Midland Division, N. Y., N. H. & H. R.R., Dorchester.
Norfolk street, over Midland Division, N. Y., N. H. & H. R.R., Dorchester.
* North Harvard street, from Brighton to Cambridge.
Oakland street, over Midland Division, N. Y., N. H. & H. R.R., Mattapan.
Perkins street, over Boston & Maine and Boston & Albany Railroads.
* Prison Point bridge, Charlestown to Cambridge.
Southampton street, over Old Colony Division, N. Y., N. H. & H. R.R.

Summer street, over freight tracks, N. Y., N. H. & H. R.R.
* West Boston temporary bridge, from Boston to Cambridge.
West Fourth street, over Old Colony Division, N. Y., N. H. & H. R.R.
* Western avenue, from Brighton to Cambridge.

IV.— BRIDGES SUPPORTED BY RAILROAD CORPORATIONS.

1st. — Boston & Albany R.R.

Albany street, over passenger tracks.
Harrison avenue.
Market street, Brighton.
Tremont street.
Washington street.

2d. — Boston & Maine and Boston & Albany Railroads.

Main street.
Mystic avenue.

3d. — Boston & Maine R.R., Eastern Division.

Wauwatosa avenue, East Boston.

4th. — Boston, Revere Beach & Lynn R.R.

Everett street.

5th. — New York, New Haven & Hartford R.R., Midland Division.

Broadway.
Dorchester avenue.
Fifth street.
Fourth street.
Morton street, Dorchester.
Norfolk street, near Dorchester station.
Second street.
Silver street.
Sixth street.
Third street.
Washington street, Dorchester.

6th. — New York, New Haven & Hartford R.R., Old Colony Division.

Adams street.
Cedar Grove Cemetery.

Freeport street.
Medway street.
Savin Hill avenue.

7th.—New York, New Haven & Hartford R.R., Providence Division.

Albany street.
Beech street, West Roxbury.
Bellevue street, West Roxbury.
Berkeley street.
Broadway.
Canterbury street, West Roxbury.
Castle square.
Centre and Mt. Vernon streets, West Roxbury.
Columbus avenue.
Dartmouth street.
Dudley avenue, West Roxbury.
Harrison avenue.
Park street, West Roxbury.
Washington street.

V.—Bridge Supported by the Metropolitan Park Commission.

Mattapan bridge, Dorchester to Milton.

Recapitulation of Bridges.

I.	Number wholly supported by Boston . .	74
II.	Number of which Boston supports that part within its limits	13
III.	Number of which Boston pays a part of the cost of maintenance	23
IV.	Number supported by railrord corporations:	
1.	Boston & Albany Railroad	5
2.	Boston & Maine and Boston & Albany Railroads,	2
3.	Boston & Maine, Eastern Division . . .	1
4.	Boston, Revere Beach & Lynn Railroad . .	1
5.	N.Y., N.H. & H. R.R., Midland Division . .	11
6.	N.Y., N.H. & H. R.R., Old Colony Division .	5
7.	N.Y., N.H. & H. R.R., Providence Division .	14
V.	Number supported by the Metropolitan Park Commission	1
	Total	150

Agassiz-road Bridge (in the Fens).

This bridge was built in 1887, of brick and stone masonry. It is maintained by the Park Department, and is in good condition.

Albany-street Bridge (over the Boston & Albany R.R. Freight Tracks).

The original structure was built in 1856–57, and rebuilt in 1867–68. The present bridge was built in 1886–87, and is maintained in part by the City of Boston and in part by the Boston & Albany Railroad. With exception of the railings, the bridge is in fair condition. The railings are so badly rusted in places that they do not afford the protection to travel that should be given.

Allston Bridge (over the Boston & Albany R.R., Brighton).

This is an iron bridge, built in 1892. The ironwork under the flooring needs painting, and some of the woodwork around the trusses should be renewed.

Arborway Bridge (over Stony brook, in Arborway, near Forest Hills Station).

This is a wooden bridge resting on abutments of vulcanized spruce piles. The stringers and under-planking are of vulcanized hard pine. It was built in 1893, and is maintained by the Park Department. It is in good condition.

Ashland-street Bridge (over Providence Division, New York, New Haven & Hartford R.R., West Roxbury).

The present structure is of iron, and was built in 1875. In October, 1903, the lower planking and such of the stringers as were found to be poor were renewed. With the exception of one of the fences, which should be painted, the bridge is now in good condition.

Ashmont-street and Dorchester-avenue Bridge (over Old Colony Division, New York, New Haven & Hartford R.R.).

This is a wooden bridge, formerly maintained by the railroad company. It was lengthened on the Boston side in 1895, and now the city maintains 75 feet of the northerly part. The sidewalk and some of the deck planking has been repaired; the decking should be renewed and the fence painted.

Athens-street Bridge (over Midland Division, New York, New Haven & Hartford R.R.).

This is an iron bridge, built in 1874. The fences should be repaired and painted.

Audubon-road Bridge (over the Boston & Albany R.R.).

This is a steel plate girder bridge, built in 1893–94, and is maintained by the Park Department. The sidewalk planking is in poor condition and should be renewed, and the ironwork over the main tracks should be painted.

Beacon-street Bridge (over Outlet of the Fens).

This bridge was built in 1880–81, and had, up to 1901, a wooden floor for the roadway. At the latter date a new floor was built, consisting of 18-inch steel I-beams encased in Portland cement concrete and the roadway was paved with hard-pine blocks, treated by the creo-resinate process. The bridge is now in good condition.

Beacon-street Bridge (over Boston & Albany R.R.).

This is an iron bridge, built in 1884–85, widened in 1887–88, and the central roadway further widened in 1890 for the convenience and at the expense of the street railway company.

As reported last year, the ironwork below the floor is very rusty and should be painted. The sidewalk planking is poor, and the wooden fascias should be repaired.

Bellevue-street Bridge (over Muddy river in Riverway).

This is a segmental masonry arch of 44 feet span and 15 feet rise. It was built in 1893 by the Park Departments of Boston and Brookline, and is maintained jointly by them.

Bennington-street Bridge (over Boston, Revere Beach & Lynn R.R.).

This bridge is made up of two independent parts; the old part is of iron, built in 1889; the new part is of steel, built in 1902. The bridge is in good condition.

Berkeley-street Bridge (over Boston & Albany R.R. and Providence Division, N.Y., N.H. & H. R.R.).

The bridge over the tracks of the Boston & Albany Railroad, which is maintained by the city, was originally built

for the Boston Water Power Company, and accepted by the city in 1869. The present structure over these tracks is a through plate girder bridge, and was built in 1891. It is now in good condition, except the lower planking, which should be renewed when the bridge is sheathed.

The bridge over the tracks of the N.Y., N.H. & H. R.R was built in 1899, and is maintained by that company.

Bernier-street Foot-bridge (over Bridle Path in Riverway).

This is a semi-circular masonry arch of 38 feet 4 inches span. It was built in 1893, and is maintained by the Park Department.

Bernier-street Foot-bridge (over Muddy river).

This is a segmental masonry arch of 52 feet span and 14 feet rise. It was built in 1893 by the Park Departments of Boston and Brookline, and is maintained jointly by them.

Berwick park Foot-bridge (over Providence Division, New York, New Haven & Hartford R.R.).

This is an iron foot-bridge, erected in 1894. The iron stairs and piers were new, but the trusses and floor-beams were those built for Franklin street in 1883. With the exception of risers on the stairs, which should be painted, the bridge is in good condition.

Blakemore-street Bridge (over Providence Division, New York, New Haven & Hartford R.R.).

This is an iron bridge, built in 1881–82. New sidewalk planking has been laid during the year. The bridge should be painted and the fascias repaired.

Blue Hill-avenue Bridge (overMidland Division, New York, New Haven & Hartford R.R.).

This is a steel bridge built by the New York, New Haven & Hartford R.R. in 1903, and is over the railroad location. The surface of the bridge is maintained by the city, the remainder by the railroad company; it is in good condition.

Bolton-street Bridge (over Midland Division, New York, New Haven & Hartford R.R.).

This is a wooden bridge, built is 1889. This bridge is in poor condition, and should be rebuilt.

Boston-street Bridge (over Old Colony Division, New York, New Haven & Hartford R.R.).

This is a plate girder bridge, built in 1900, in connection with the abolishment of the grade crossing on Dorchester avenue. The surface of the bridge is maintained by the city, and the rest of the structure by the railroad company. The bridge should be painted; otherwise it is in good condition.

Boylston-street Arch Bridge (in the Fens).

This is a stone arch bridge, built in 1881. It is in good condition, with exception of coping, which should be repointed.

Boylston-street Bridge (over Boston & Albany R.R.).

This is an iron bridge, built in 1886–88. The railings have been painted and the sidewalks repaired during the year.

Bridle-path Bridge (over Muddy river in the Riverway).

This a masonry bridge of three arches; the central arch is elliptical in form, with a span of 30 feet and a rise of 9 feet 6 inches; the side arches are semi-circular, 15 feet in diameter. It was built in 1894, and is maintained by the Park Department. It is in good condition.

Broadway Bridge (over Fort Point Channel).

This bridge has been rebuilt except the draw and its foundation, and was opened to travel September 21, 1904. The draw and its foundation were rebuilt in 1874–75; the stringers on the draw were renewed in 1896 and the deck planking last year.

(See page 76.)

Broadway Bridge over (Boston & Albany R.R.).

The old bridge, built in 1880–81, was replaced in 1900 by the present bridge. The railings should be cleaned and painted at once even if the rest of the structure is not painted, for the reason that the metal is thin and unless it is well protected will rust out in a very few years. The under portions of the bridge also need painting to protect them.

Brookline-avenue Bridge (over Boston & Albany R.R.).

This is an iron bridge, built in 1884. The under-planking is in poor condition and the ironwork below the floor is badly rusted. The deck of this bridge should be renewed and the ironwork cleaned and painted this year.

Brookline-avenue Bridge (over Muddy river in the Riverway).

This is a semi-circular masonry arch of 15 feet span. It was built in 1892 by the Park Departments of Boston and Brookline, and is maintained by them jointly.

Brooks-street Bridge (near Faneuil Station, Brighton).

This is a steel bridge, with a concrete and asphalt floor, built in 1902. It is in good condition.

Byron-street Bridge (over Boston, Revere Beach & Lynn R.R.).

This is a wooden bridge, built in 1889. The lower planking has been renewed. The sidewalks and bulkheads at ends of bridge need repairing; the curb-stick and curb-stringer have begun to decay, and will soon need renewal; the rods in the trussed beams need painting; the nests built by English sparrows among the trussed beams, over the tracks, should be removed.

Cambridge-street Bridge (from Brighton to Cambridge).

This is a wooden pile bridge with a wooden leaf draw. It was rebuilt in 1884; the draw was rebuilt in 1891. The bridge is in the care of the Commissioners for the Boston and Cambridge Bridges, and the city pays one-half the cost of maintenance. The lower planking on the draw has been renewed, and some repairs have been made on the decking of the main bridge. The planking on the Cambridge pier is very poor and needs renewal; the waterways need replanking, especially on the Boston side, under the draw, where the piling needs additional securing; the deck planking on the Boston side has been repaired in spots many times, and should be entirely renewed and additional stringers added. One draw-arm on the Cambridge side should be renewed; both abutments need small repairs; the draw should be adjusted, and a boat should be provided. The fender-guards need repairing.

Cambridge-street Bridge (over Boston & Maine and Boston & Albany Railroads, Charlestown).

This is a steel bridge of four spans, built in 1901 by the Boston & Maine Railroad. The surface is maintained by the city, the remainder by the railroad company. The bridge is in good condition.

Canal or Craigie's Bridge.

This is a wooden pile bridge, with a wooden turn-table draw. The city pays one-half the cost of maintenance. The bridge was originally built in 1808, was rebuilt in 1852, and was again rebuilt and widened in 1874. The bridge is in the care of the Commissioners for the Boston and Cambridge Bridges. Only ordinary repairs have been made.

The bridge is in poor condition and will soon be discontinued owing to the construction of the Charles River Dam; when the bridge is closed travel will be turned over a temporary bridge.

Castle Island Foot-bridge (from Marine Park to Castle Island).

This is a temporary foot-bridge built in 1892, and is maintained by the Park Department. It connects the Marine Park with Castle Island, and is furnished with a draw, so that if desired by the United States authorities the island can be cut off from the mainland. A small amount of replanking has been done. Repairs are needed on the fence and planking, and the bridge should be painted; otherwise the bridge is in fair condition.

Central-avenue Bridge (over Neponset river, Dorchester Lower Mills).

This is an iron bridge, and was built in 1876. The city maintains the part within its limits. The bridge is in fair condition.

Charlesgate Bridge (over Boston & Albany R.R., in the Fens).

This is an iron bridge, built in 1881–82, and is maintained by the Park Department.

Charlesgate Bridge (over Ipswich street, in the Fens).

This is a deck-plate girder bridge with a buckle-plate floor. The roadway is paved with asphalt and the sidewalks with

artificial stone. It is in good condition except where the artificial stone walk has been torn up over the water pipes. This should be restored.

Charlestown Bridge (from Boston to Charlestown).

This bridge was opened to public travel November 27, 1899, and superseded the old Charles River bridge, which was built in 1785–86.

The present bridge over the river consists of ten spans of the deck-plate type, each 85 feet long, and a swing or turn-table draw 240 feet 6 inches long.

The bridges over Water street and over the railroad tracks each consist of two spans of steel I-beams, with brick arches turned between the beams. The entire structure is in good condition.

Chelsea Bridge (over Boston & Maine R.R.).

This is an iron bridge, built by the Boston & Maine Railroad Company in 1894, and is over the railroad location. The surface of the bridge is maintained by the city, the remainder by the railroad company. July 5 the adjoining wharf and grain elevator were destroyed by fire, and part of the sidewalk on the bridge was destroyed and has been rebuilt. The wheelguard is too low and narrow and the fences need repairing and painting, and the sidewalk planking needs repairing; otherwise the bridge is in good condition.

Chelsea Bridge, North (over North Channel, Mystic river).

The city maintains the part within its limits. The original structure was built in 1802–03. The piles under the main bridge were driven in 1880. The upper part of the bridge, the draw and draw foundations were built in 1895. The draw-way was widened to 60 feet in 1900, the draw foundation being enlarged, the draw lengthened, and the draw piers built. Ordinary repairs have been made; the tops of some of the old piles have begun to decay; the old fender-guards are in poor condition; some of the sidewalk planking needs renewal, and many palings on the fence need straightening; otherwise the bridge is in good condition.

Chelsea Bridge, South (over South Channel, Mystic river).

This is a pile bridge with an iron draw. The original bridge was built in 1802–03. The piles of the present bridge

were driven and the draw was built in 1877. That part of the bridge above the girder caps was rebuilt at a higher grade, and the draw was raised in 1895. The face of the pier under the draw has been repaired, and general repairs have been made. The fender-guards are in poor condition; the top of the pier should be rebuilt; the waterway should be repaired; the deck planking and sidewalks on the draw should be renewed; two iron brackets on the draw should be repaired, and several pieces of track should be renewed.

Chelsea-street Bridge (from East Boston to Chelsea).

This is a wooden pile bridge, with an iron swing draw; the original bridge was built in 1834; was rebuilt in 1848, 1873, and again in 1894–95. The decking is in poor condition and will soon need renewal; a new latch and a new wheel for operating the adjusting screw should be provided, and the draw should be painted.

Circuit-drive Bridge (over Scarboro' Pond in Franklin Park).

This is an elliptical masonry arch of 30 feet span and 6 feet 3 inches rise. It was built in 1893, and is maintained by the Park Department.

Columbia-road Bridge (over Old Colony Division, New York, New Haven & Hartford R.R.).

This is a deck plate girder bridge of two equal spans, one over the tracks of the N. Y., N. H. & H. R.R., and the other over Old Colony avenue, and was built in 1902. The roadway is paved with Canton brick, cement grout joints and laid on hard pine planking. The sidewalks have an asphalt wearing surface. The bridge is in good condition.

Columbia-road Bridge (over Shoreham street).

This bridge was built in 1902. It is a two-span steel-beam structure, with brick and concrete arches turned between the beams; the roadway is paved with Canton brick laid with cement grout joints. The sidewalk is of artificial stone. It is in good condition.

Columbus-avenue Bridges (over Boston & Albany R.R. and Providence Division, New York, New Haven & Hartford R.R.).

The bridge over the Boston & Albany Railroad was built in 1876–77, and is maintained by the city. In 1899 the

bridge was shortened 11 feet at its south end, and a pier built in place of the old south abutment.

The sidewalk planking has been patched and the roadway sheathed during the year.

The bridge over the tracks of the N. Y., N. H. & H. R.R. was built in 1899, and is maintained by that company.

Commercial Point or Tenean Bridge (Dorchester).

This is a wooden pile bridge with a wooden leaf draw. The piles were driven in 1875. The draw and upper part of the bridge was rebuilt in 1901. It is in fair condition.

Commonwealth-avenue Bridge (in the Fens).

This is an iron bridge, and was built in 1881–82. It is in good condition, with the exception of the sidewalk planking, which should be renewed. It is maintained by the Park Department.

Congress-street Bridge (over Fort Point Channel).

This is a wooden pile bridge, with an iron turn-table draw on a stone foundation, and was built in 1874–75.

This bridge is now closed to travel.

(See page 78.)

Cornwall-street Bridge (over Stony Brook, West Roxbury).

This is a small wooden bridge, built in 1892. It is in good condition.

Cottage Farm Bridge (over Boston & Albany R.R., Brighton).

The present bridge was built in 1895–96. With the exception of the plate girders on the outside lines of the bridge, and some special construction under the sidewalks, the superstructure is composed of 20-inch steel beams filled between with brick arches and Portland cement concrete, on which is a wearing surface of Sicilian rock asphalt. The bridge needs painting, otherwise it is in good condition.

Cottage-street Foot-bridge (over flats, East Boston).

This is a wooden pile bridge, built in 1889, for foot travel only. This bridge was partially destroyed by the ice a year ago, necessitating its closing. It has not been repaired.

Dartmouth-street Bridges (over Boston & Albany R.R. and Providence Division, New York, New Haven & Hartford R.R.).

The bridge over the Boston & Albany Railroad was built in 1878–79, and is maintained by the city. Very extensive changes were made in this bridge in 1899 by the railroad companies, necessitated by the new location of the tracks of the N. Y., N. H. & H. R.R. leading to the South Station and the abandoning of the tracks connecting this road with the B. & A. R.R. The bridge has been sheathed, and some patching done to lower planking. This planking is very thin and should be renewed. The bridge over the tracks of the N. Y., N. H. & H. R.R. was built in 1899, and is maintained by the railroad company.

Dorchester-avenue Bridge (over Fort Point Channel).

This is a wooden pile bridge, with a double retractile iron draw, and was rebuilt in 1891–92. Some of the sidewalk has been resurfaced and general repairs have been made; the planking on the wharves, piers, waterway and the sidewalk planking on the draw need patching; the fences need painting, and stiffeners should be placed under the angle-irons which support the track stringers; some of the spur-shores have begun to decay, and should be refitted; the irons on the waterway and the ladder should be repaired; the wreckage among the piling should be removed.

Dorchester-avenue Bridge (over Old Colony Division, New York, New Haven & Hartford R.R.).

This is a steel bridge, built in 1900, over the new location of the N. Y., N. H. & H. R.R. The surface of the bridge is maintained by the city and the rest of the structure by the railroad company. It needs painting badly; otherwise it is in good condition.

Dover-street Bridge (over Fort Point Channel).

This was originally a wooden pile bridge, built in 1805, rebuilt in 1858–59, and again in 1876. In 1893–94, upon the abolition of the grade crossing of the Old Colony Railroad, the present iron structure, resting on masonry piers, was built. General repairs have been made; some new track is needed for the draw; the rack should be realigned in order that the draw may be reversed; the masonry piers need

repointing. The lower planking on the draw is in poor condition and needs renewal; otherwise the bridge is in good condition.

Ellicott-arch Bridge (in Franklin Park).

This is a semi-circular masonry arch of 17 feet 6 inches span. It was built in 1889, and is maintained by the Park Department.

Essex-street Bridge (from Brighton to Cambridge).

This bridge is in the care of the Commissioners for the Boston and Cambridge Bridges; the city pays one-half the cost of maintenance. It is a wooden pile bridge, with a wooden leaf draw, and was originally built in 1850; the draw was rebuilt and the adjoining stringers renewed in 1891; the other woodwork above the piles was renewed and some piles of the Boston side were driven in 1896. The bridge is in fair condition only, but will soon be rebuilt at a higher grade to abolish the grade crossing when, under a legislative act, it will be known as Brookline-street Bridge.

Everett-street Bridge (over Boston & Albany R.R., Brighton).

This is an iron bridge, built in 1891 by the Boston & Albany Railroad Company. The recommendation made in these reports for several years past is renewed this year, that the ironwork above and below the floor be thoroughly cleaned and painted. Some of the woodwork should be repaired, particularly the boxing around the trusses.

Fen Bridge (in the Fens).

This bridge was built in 1891–93. It is in good condition.

Ferdinand-street Bridge (over Boston & Albany R.R.).

This is an iron bridge, built in 1892. In 1899 this bridge was shortened about three feet at its southerly end, and the old south abutment replaced by a brick pier. As reported for the past two years, the lower planking is in a very poor condition. It is recommended that this bridge be painted and new lower planking put on this year.

Forest Hills Entrance Bridge (in Franklin Park).

This bridge was built in 1894–95. It is maintained by the Park Department, and is in good condition.

Gainsborough-street Foot-bridge (over Providence Division, New York, New Haven & Hartford R.R.).

(See page 69.)

Gold-street Bridge (over Midland Division, New York, New Haven & Hartford R.R.).

This bridge was built in 1895, replacing a foot-bridge which was built in 1890; the sidewalk planking should be renewed; the fences should be repaired; the bridge should be painted, and the walls need some pointing; otherwise the bridge is in good condition.

Granite Bridge (from Dorchester to Milton).

This is a wooden pile bridge, with a wooden leaf draw. The city maintains the part within its limits. The bridge was originally built in 1837. It is in poor condition, and should be rebuilt; the abutment should be repaired; the piles are much worn; several of the stringers show considerable rot; the sidewalk plank and the planking on the draw need renewal, and the tops and sides of the piers are very poor.

Harvard Bridge (from Boston to Cambridge).

This is an iron bridge with an iron turn-table draw, and was built in 1887–91. The bridge is in the care of two Commissioners, one appointed from Boston and one from Cambridge, and the expense of maintenance is borne equally by each city.

The roadway of the fixed spans was repaired in 1901–02 and a wooden block paving laid. The roadway of these spans is now in good condition, but that of the draw span is in very poor condition. The lower planking and stringers have not been renewed since the draw was built in 1891, and they are now very rotten. In the report made a year ago it was stated that "unless a new deck is put on at once it will be necessary to have it carefully watched and repairs made as soon as signs of breaking through appears." The conditions remain the same now. The asphalt sidewalks, which have been reported for a number of years to be in very poor condition, have grown much worse, and should be no longer tolerated on a bridge having so much foot travel. The railings are very rusty and should be cleaned and painted.

Harvard-street Bridge (over Midland Division New York, New Haven & Hartford R.R., Dorchester).

This is a new steel bridge, replacing a wooden stringer bridge, and was built under an agreement between the City and the New York, New Haven & Hartford Railroad Company.

(See page 69.)

Huntington-avenue Bridge (over Boston & Albany R.R.).

This is an iron bridge. It was built in 1872, and in 1876–77 the abutments were rebuilt and the bridge widened by the addition of two new girders. In 1896, in consequence of changes in the grade of the avenue, the floor was entirely rebuilt and new girders added for supporting the water pipes. During the past year the bridge was stripped, cleaned and painted. A new deck was also put on. The bridge is now in a fair condition for so old a structure.

Huntington-avenue Bridge (over Muddy River).

This is a semi-circular masonry arch of 15 feet span. It was built in 1893, and is maintained by the Park Departments of Boston and Brookline.

Ipswich-street Bridge (over Waterway in the Fens).

The bridge was built in 1898, and is in good condition excepting the railings, which should be painted.

Irvington street Foot-bridge (over Providence Division, New York, New Haven & Hartford R.R.).

This is an iron foot-bridge, and was built in 1892. The planking is thin, but otherwise the bridge is in good condition.

L-street Bridge (over Reserved Channel, South Boston).

This is a wooden pile bridge with an iron retractile draw. It was built in 1892. A new 4-inch deck has been put on the draw, and the lower part of the draw has been painted; some of the piling in the fender-guard and under the 6-foot walk needs renewal; one of the sidewalks on the draw should be replanked, and part of the walk near the South Boston end should be resurfaced; the planking on the waterways and pier needs patching.

Leverett Pond Foot-bridge (in Leverett Park).

This is a segmental masonry arch of 24 feet span and 5 feet 5 inches rise. It was built in 1894, and is maintained by the Park Department.

Linden Park-street Bridge (over Stony Brook).

This is a wooden bridge, built in 1887. The bridge is in fair condition.

Longwood-Avenue Bridge (over Muddy River and Boston & Albany R.R.).

The original wooden structure was built in 1857, and rebuilt in 1877. The present masonry arches were erected in 1899 by the Park Departments of Boston and Brookline, and are maintained jointly by them.

Malden Bridge (from Charlestown to Everett).

This is a wooden pile bridge with a retractile steel draw, and was rebuilt in 1900–01. The upper part of the draw has been painted with red lead, and ordinary repairs have been made; the bridge should be painted, and about 50 feet of fence should be built on the wing of the abutment at the Charlestown end. Otherwise it is in good condition.

Massachusetts-avenue Bridge (over Boston & Albany R.R.).

This is an iron bridge, built in 1876. It was thoroughly repaired in 1893, with the exception of the wooden fences. These fences, although they have been painted during the past year, are still in poor condition. New sidewalks have been built during the year and some new decking put down.

Massachusetts-avenue Bridge (over Providence Division, New York, New Haven & Hartford R.R.).

This is an iron bridge, built in 1876. The woodwork was renewed in 1901, and the ironwork cleaned and painted. The planking on both sidewalks is very thin and should be renewed. The whole bridge should be cleaned and painted.

Mattapan Bridge (from Dorchester to Milton).

This is a three-arch bridge of Melan construction, with granite facing. It was built in 1902 by the Metropolitan Park Commission, and is maintained by it. The arches are

semi-circular, two spans being 14 feet and one 50 feet; the bridge has one 56-foot roadway and two 12-foot sidewalks. It is in good condition.

Meridian-street Bridge (from East Boston to Chelsea).

This is a wooden pile bridge, with a wooden turn-table draw on a pile foundation. The original structure was built in 1858. It was rebuilt soon afterwards, and was widened and rebuilt in 1884, excepting the draw, which was built in 1875–76. The chords of the draw were rebuilt in 1896.

The bridge needs general repairing; the caps should be rebolted to the piles; some of the curb stringers, and stringers at the Boston end of the channel and the tops of some piles are somewhat decayed and need strengthening; the roadway planking has begun to decay, some fence posts are badly split; the waterway, the planking on the pier and wharf, the fascia on the sidewalk and the painting are in poor condition; the draw should be set up and some of the upper angle blocks need renewing; the track is much worn.

Milton Bridge (from Dorchester to Milton).

The city maintains the part within its limits. The original structure is very old. It was widened in 1871–72. The older part of this bridge was built of stone, and the widening is an iron structure on stone columns. The westerly sidewalk was rebuilt on new iron girders and floor beams in 1900. The bridge should be painted, and the sidewalk planking on the down-stream side of the bridge should be renewed in part; one of the cap-stones over the first waterway is cracked.

Mt. Washington-avenue Bridge (over Fort Point Channel).

This is a wooden pile bridge with an iron draw. It was built in 1854, and rebuilt in 1870–71. The draw-way of the South Boston channel has been widened to 50 feet, as ordered by the Secretary of War; no additional work has been done on this bridge, and it has been closed to travel since early summer.

(See page 80.)

Neponset Bridge (from Dorchester to Quincy).

The city maintains the part within its limits. The original structure was built in 1802, and the present one in 1877. The draw is too heavy to be handled by hand, and should be

replaced by a turn-table draw. General repairs have been made. The bridge needs general overhauling. The upstream draw-arm is bent and should be repaired; the downstream pier and fender-guards need extensive repairs; the blocking, hinges, planking, stringers near the gudgeons and gears, the decking of the draw, the sidewalk planking, and the bearing-plate at the abutment are in poor condition, and should be renewed.

Neptune-road Bridge (over Boston, Revere Beach & Lynn R.R.).

This is an iron bridge, built in 1887–88, and is maintained by the Park Department. The roadway planking should be renewed; otherwise the bridge is in good condition.

Newton-street Bridge (over Providence Division, New York, New Haven & Hartford R.R.).

This is an iron bridge, built in 1872. It was cleaned and painted in 1902 and a new deck put on. The fences are poor, but otherwise the bridge is in a good condition for so old a structure.

Norfolk-street Bridge (over Midland Division, New York, New Haven & Hartford R.R., near Mattapan Station).

This is a through lattice girder bridge, and was built by the railroad company in 1902.

The surface of the bridge is maintained by the city, and the rest of the structure by the railroad company. The bridge is in good condition.

North Beacon-street Bridge (from Brighton to Watertown).

The city maintains the part within its limits. This is a wooden pile bridge with a wooden leaf draw. The original structure was built in 1822, and the present one in 1884. The sidewalk has been replanked; the bridge is in poor condition; the draw planking, three draw-arms, and some of the adjoining stringers should be renewed; the draw pier is in very poor condition, and the upper part should be rebuilt, and many of the piles in the bridge have begun to decay.

North Harvard-street Bridge (from Brighton to Cambridge).

This bridge was originally built in 1662, and was rebuilt, except the piling, in 1879; the draw was built in 1891.

The bridge is in the care of the Commissioners for the Boston and Cambridge Bridges; the city pays one-half the cost of maintenance. The bridge is in poor condition, and should be rebuilt and replaced by a wider structure, more in keeping with the improvements recently made in the vicinity.

Oakland-street Bridge (over Midland Division, New York, New Haven & Hartford R.R.).

This is a new steel plate girder bridge, built by the railroad company in 1902 under the decree of the Superior Court abolishing the grade crossing at this point. The surface of the bridge is maintained by the city and the rest of the structure by the railroad company. It is in good condition.

Perkins-street Foot-bridge (over the Boston & Maine R.R. and Boston & Albany R.R. in Charlestown).

This bridge was built in 1900, and opened to travel February 2, 1901; it has two spans of wooden stringers and one of steel Pratt trusses. The surface is maintained by the city, the rest of the structure by the railroad companies. It is in good condition.

Prison-point Bridge (from Charlestown to Cambridge).

This bridge was originally built in 1833, and was rebuilt in 1876–77. The operation of the draw is in the care of the Commissioners for the Boston and Cambridge Bridges, the city paying one-half the cost.

This bridge is to be replaced by a new one to be built at a higher grade to abolish the numerous grade crossings, the work to be done by the Boston & Maine R.R. The Charlestown end of the new bridge is partially built, and a temporary wooden bridge connects the new work with the Cambridge end, and is kept in repair by the Boston and Maine Railroad.

No work of importance has been done on the permanent structure during the past year.

Public Garden Foot-bridge.

This is an iron bridge. It was built in 1867, and is now in good condition.

Scarboro' Pond Foot-bridge (in Franklin Park).

This is an elliptical masonry arch of 40 feet span and 8 feet 3 inches rise. It was built in 1893, and is maintained by the Park Department.

Shawmut-avenue Bridge (over Boston & Albany R.R. and Providence Division, New York, New Haven & Hartford R.R.)

The original bridge built in 1871 has been removed and a new through plate girder bridge built during the past year. (See page 80.)

Southampton-street Bridges (over South Bay Sluices).

These are wooden bridges, built in 1875 as temporary structures; sidewalk bulkheads and roadway bulkheads are in poor condition and should be renewed; the wing bulkheads are also in poor condition; the sidewalk planking needs repairing; the roadway planking on the westerly bridge needs renewal in part, and additional braces are needed on both bridges.

Southampton-street Bridge (over Old Colony Division, New York, New Haven & Hartford R.R.).

This is a steel plate girder bridge, built in 1901–02. The surface is maintained by the city, the rest of the structure by the railroad company. The bridge should be painted; otherwise it is in good condition.

Spring-street Bridge (from West Roxbury to Dedham).

This is a stone bridge. The city maintains the part within its limits. The piers and arches have been pointed during the year, and granite copings, surmounted by iron railings, have been built on both sides of the bridge for the length supported by the City of Boston.

Stony-brook Bridge (in the Fens).

This is an ornamental brick arched bridge, with stone facings, built in 1891–92, and maintained by the Park Department. It is in good condition.

Summer-street Bridges (over A, B and C streets).

These bridges were built in connection with the abolition of the grade crossing on Congress street, and were opened to travel in 1900. The bridge over A street is a steel deck plate girder structure, with a paved roadway of granite blocks and asphalt sidewalks.

The bridge over B street is a through plate girder structure, with a paved roadway of granite blocks and asphalt sidewalks.

The bridge over C street is a two-span steel-beam structure, with brick and concrete arches turned between the beams; the roadway is paved with granite blocks and the sidewalks with asphalt.

These bridges are all in good condition except the railings, which should be painted on all the bridges. The stairway leading down to B street should also be painted.

Summer-street Bridge (over Fort Point Channel).

This bridge was built in 1899–1900, in connection with the abolition of the grade crossing on Congress street. It is a four-span deck plate girder bridge, resting on masonry piers, with two retractile draws, over a 50-foot channel-way. The roadway of the fixed spans has a granite block paving, and the sidewalks have asphalt wearing surfaces. The whole structure is in good condition, but should be painted during the year.

Summer-street Bridge (over New York, New Haven & Hartford Railroad Freight Tracks).

This bridge was built in 1900, in connection with the abolition of the grade crossing on Congress street, and is maintained by the city and the railroad company, the former maintaining the wearing surface and the latter maintaining the rest of the structure. It has four spans, consisting of three through trusses each, and has a granite-paved roadway and asphalt sidewalks. It is in good condition except the railings, which are badly rusted and should be painted.

Warren Bridge (from Boston to Charlestown).

This is a wooden pile bridge, with a double retractile iron draw. The present structure was built in 1883–84. Some of the piles under the wharf are broken; the fender-guards are in poor condition; the paving on the Charlestown end of the bridge, planking on the waterway and in the draw pit, the piling at two corners of the waterway and the tail track timber need repairing; the landing shoes should be reset; the sidewalk on the westerly side of the bridge, city end, should be extended about twenty feet, and the easterly sidewalk, city end, should be repaired; the curb on the draw should be realigned, and some of the fence posts need renewal.

West Boston Temporary Bridge (from Boston to Cambridge).

This bridge was built in 1898–99 to accommodate the travel using West Boston bridge till the Cambridge bridge should be built; the city pays one-half the cost of maintenance. This bridge is provided with two draws; the easterly one has been in use till last May, when the westerly draw was put in commission, and the water travel was carried by the new channel through this draw-way and the use of the easterly draw-way discontinued.

October 5 a fire started under the bridge and burned the top work, necessitating the rebuilding of about 182 feet; the piles were burned down part way and were recapped at a lower level, and the upper part of the bridge was built on these.

Considerable part of the lower planking has been renewed; the remainder is in poor condition and needs renewal in part.

West Fourth-street Bridge (over Old Colony Division, New York, New Haven & Hartford R.R.).

In 1893–94 the grade crossing of the Old Colony Railroad on this street was abolished, and an iron bridge built, extending from the end of Dover-street bridge, at the South Boston side of Fort Point channel, to the easterly line of Foundry street. The surface is maintained by the city, the rest of the structure by the railroad company. The deck planking has been renewed. The planking around the middle trusses needs renewal and the bridge needs painting.

West Rutland-square Foot-bridge (over Providence Division, New York, New Haven & Hartford R.R.).

This is an iron foot-bridge, built in 1882. It is now in good condition with the exception of the stair treads, which are badly worn.

Western-avenue Bridge (from Brighton to Cambridge).

The present bridge was built in 1879–80, and the draw in 1891. It is in the care of the Commissioners for the Boston and Cambridge Bridges, and the city pays one-half the cost of maintenance. About half the deck planking on the Boston end of the bridge has been renewed, some fencing has been rebuilt, and the draw has been adjusted. The Cambridge end of the bridge is in fair condition, the Boston end in

rather poor condition, some of the piles and stringers needing renewal; the piers and waterways need repairing.

Western-avenue Bridge (Brighton to Watertown).

The city maintains the part within its limits. This is a wooden pile bridge, with an iron draw, and was rebuilt in 1892–93. Only minor repairs have been made; the Boston end of the draw should be raised; the draw and its bearings should also be adjusted; the planking and capsills on the piers and along the waterways should be repaired; some of the spurshores are broken and should be refitted; the deck planking on draw and main bridge needs renewal, and the bridge needs painting; some of the piles in the fender-guard are in poor condition.

Winthrop Bridge (from Breed's Island to Winthrop).

This is a pile bridge without a draw. It was originally built in 1839; it was rebuilt in 1851, and was extensively repaired in 1870. The abutment at the Winthrop end needs pinning up, as there has been some settlement; a few of the outside bolsters are not in good condition; otherwise the bridge is in fair condition.

Wood Island Park Foot-bridge.

This is a steel foot-bridge, built in 1898–99, and connects Prescott street, East Boston, with Wood Island Park, spanning the tracks of the Boston, Revere Beach & Lynn R.R. The walls need pointing and the bridge should be painted.

Bridges wholly Supported by Railroad Corporations.

The highway bridges maintained by the several railroad companies are in good or fair condition, with the exceptions noted.

SURVEYING DIVISION.

The work of the Surveying Division during the past year has consisted of the making of such surveys and plans as have been required by the several city departments, and giving lines and grades of public streets when requested by abuttors intending to build.

One hundred and twelve petitions requesting that catch-basins should be constructed were reported upon to the Sewer Division.

Catch-basin locations were furnished the Sewer Division for seventeen streets advertised to be regulated by the Superintendent of Streets.

On request of the Sewer Division, ninety plans of streets showing proposed locations of future catch-basins were furnished.

Catch-basin locations were furnished the Sewer Division of two streets which it was proposed to lay out, widen or extend.

Two hundred and forty-seven catch-basins were staked out, and duplicate sketches, showing the locations and ties, were sent to the Sewer Division.

One hundred and sixty-six plans of underground pipes, conduits, etc., were examined, and proposed future catch-basins located for the Permit Division.

One hundred and sixty-three notices of contracts to lay artificial stone sidewalks were received and reported upon to the Paving Division.

In forty-eight cases the Paving Division was notified that the existing edgestone should be reset, preparatory to the laying of artificial stone.

Nineteen petitions to make sidewalk openings were received from the Paving Division and reported upon.

Seventy-nine requests for edgestone were examined, and amount of curb required reported to the Paving Division.

Grade heights were furnished Engineers and Architects on twenty-two estates.

Twenty-six plans of streets were made for sidewalk assessments on request of the Paving Division. Data was also furnished the Paving Division for sidewalk assessment on eleven estates.

Estimates for grade, land and building damages, and cost of construction were furnished the Street Commissioners on six streets.

The lines and grades of the following seven streets, for which the Street Commissioners were petitioned for authority to open as private ways, were examined and reported upon:

Asticou street, West Roxbury. Walk Hill street to South street.
Chocorua street, West Roxbury. From Walk Hill street, southwesterly.
Doris-street extension, Dorchester. Dorchester avenue to Gardner avenue.
Gregg street, West Roxbury. Northerly from Pond street, at junction of Arborway.
Nay street, East Boston. Leading easterly from Meridian street.
Quincefield street, Dorchester. Humphreys street to Wendover street.
Ulmer-street extension, Roxbury. Arklow street to Centre street.

Estimates of grade, land and building damages and cost of construction were furnished on the following streets:

Belgrade-avenue extension, West Roxbury. Anawan avenue to Beech street.
Harvard avenue, Brighton. Brighton avenue to Commonwealth avenue.
Rogers avenue, Roxbury. Huntington avenue to Ruggles street.
Temple street, West Roxbury. Centre street to Ivory street.
Washington street, West Roxbury. Metropolitan avenue to the Dedham line.
Way street, city proper. Harrison avenue to Albany street.

Twenty-seven plans and profiles, representing a total length of four and one-half miles, showing buildings, property owners' names, established grades, areas of land taken, or to be taken, for street widenings or relocations, public alleys, etc., were completed for the Street Laying-out Department, the more important of which were Norwood street, Dorchester, from Freeport street to Walnut street, and Centre street, West Roxbury, from Walter street to Spring street.

Two plans have been made for the Schoolhouse Commission of property to be taken for school purposes, in Roxbury, as follows, viz.: Worthington street, Huntington avenue and Tremont entrance to Back Bay Fens, for the Normal and other schools; and a site on Perrin street, for a new school.

A plan was made for the Park Department for the purpose

of making an exchange of land between the City of Boston and Harvard College, at Soldiers' Field.

Plans of Long Island, Deer Island and Rainsford Island were made for the Statistics Department for the purpose of exhibition at the St. Louis Fair.

A large amount of work has been done by the division, occasioned by the grade crossing abolishment in East Boston. The surveys in connection with this work, which have been very extensive, are now completed, and the detailed plans are in the hands of the draughtsmen.

The following list gives the number of orders attended to for property owners, builders, and the various city departments, from February 1, 1904, to February 1, 1905:

Street lines given	437
Street grades given	222
Street Department, Paving Division	1,425
Street Department, Sewer Division	507
Buildings Department	110
Public Buildings Department	16
Public Grounds Department	1
Law Department	138
Street Commissioners	66
Engineering Department	139
Park Department	8
Board of Health	4
Police Department	8
Cemetery Department	13
Schoolhouse Commission	33
City Messenger Department	1
Water Department	1
Library Department	1
Insane Hospital Department	12
	3,142

In connection with the Surveying Division there have been 976 titles examined, 632 deeds, and 235 plans copied from the Registry of Deeds.

Twenty-five hundred and forty-six blue prints have been made during the year.

List of plans made for sewerage works during the year ending February 1, 1905:

EAST BOSTON.

Moore street, branch of East Boston interceptor, from Moore street to Kneller street.

SOUTH BOSTON.

Mt. Washington avenue, from Granite street to A street.

ROXBURY.

Cathedral court, from Hulbert street to Circuit street.

WEST ROXBURY.

Canterbury Branch of Stony Brook, from Don street to Blue Hill avenue.
Canterbury Branch of Stony Brook, from Blue Hill avenue to Morton street.
Cedar street, from Cedar street to Washington street.
Gilman street, from Gilman street to Ashland street.
Neponset-avenue Branch of Stony Brook, from Hadwin Way to Stony Brook.
Roslindale Branch of Stony Brook, from Linden street to Bellevue avenue.
Roslindale Branch of Stony Brook, Bellevue avenue to Belgrade avenue.
Stony Brook, at Cornwall street.
Stony Brook, at Boylston avenue.

BRIGHTON.

Parkman street, from Brooks street westerly.

The following list gives the sewerage works staked out during the year ending February 1, 1905:

DORCHESTER.

Franklin park brook, from Blue Hill avenue to Harvard street.
Geneva avenue, from Geneva avenue to Wilder street.
Hillsdale street, from Codman street to Richfield street.

WEST ROXBURY.

Roslindale branch, from Cohasset street to Linden street.
Roslindale branch, from Florence street, across Sycamore street, to Ashland street.
Roslindale branch, from Ashland street to Sycamore street.

The following table gives the comparative annual amounts of paving work measured by the Surveying Division of the Engineering Department for eleven years:

YEAR ENDING JANUARY 31.	Feet of Edgestone Set or Reset.	Square Yards, Block-stone Paving and Crossings.	Square Yards, Round-stone Paving.	Square Yards, Brick Paving.	Square Yards, Artificial Stone.	Square Yards, Coal Tar Concrete.	Square Yards, Asphalt Paving.
1895	23,487	12,007	5,175	16,168	3,962	11,738	1,406
1896	129,383	60,472	32,940	68,701	12,296	183	1,297
1897	120,158	64,952	24,976	68,178	13,471	2,971	394
1898	154,718	100,414	36,658	94,003	13,599	4,019	27
1899	76,991	56,541	14,249	43,930	11,652	1,619	.....
1900	86,354	60,803	17,323	48,946	14,221	789	16
1901	264,982	161,428	61,356	147,863	16,541	489	2,377
1902	245,410	188,041	30,324	131,487	15,565	698	.....
1903	104,133	135,310	5,077	59,051	14,119	25	.....
1904	60,555	65,474	4,815	29,078	12,806	248	263
1905	30,899	54,455	184	16,268	9,906	196	.....

Table showing the amount of paving work measured by the Surveying Division for the year ending January 31, 1905, by months:

MONTH.	Square Yards Coal Tar Concrete.	Feet of Artificial Stone Curb.	Square Yards Artificial Stone Paving.	Feet of Edgestone Set.	Square Yards Block-stone Paving and Crossings.	Square Yards Round-stone Paving.	Square Yards Brick Paving.	Square Yards Earth Excavation.	Cubic Yards Rock Excavation.
May	.....	.....	386	.....	.....	.....	.....	.....	.....
June	.....	.....	780	83	580	.....	18	.....	.....
July	.....	.....	1,249	418	3,222	.....	408	.....	.....
August	.....	5	1,782	20,372	29,998	83	8,250	2,013	66
September	.....	30	1,274	5,738	9,557	93	6,024	.....	.....
October	.....	.....	166	4,288	11,098	8	1,568	.....	.....
November	.....	.....	3,391	.....	.....	.....	.....	.....	.....
December	196	.....	878	.....	.....	.....	.....	.....	.....
Totals	196	35	9,906	30,899	54,455	184	16,268	2,013	66

Table showing the amount of paving work, by districts, measured by the Surveying Division for the year ending January 31, 1905:

DISTRICTS.	Square Yards Coal Tar Concrete.	Feet of Artificial Stone Curb.	Square Yards Artificial Stone Paving.	Feet of Edgestone Set.	Square Yards Block-stone Paving and Crossings.	Square Yards Round-stone Paving.	Square Yards Brick Paving.	Square Yards Earth Excavation.	Cubic Yards Rock Excavation.
City Proper.....	.....	.....	2,504	6,021	11,866	.....	5,401	.....	.....
South Boston....	.....	.....	213	5,242	5,960	93	3,148	.....	.....
East Boston.....	.....	.....	56	947	2,785	8	328	.....	.....
Charlestown	.....	.....	35	1,175	2,277	.....	955	.....	.....
Roxbury	.....	.....	831	6,766	17,875	.....	4,555	.....	.....
Dorchester.....	.....	30	6,090	6,045	10,931	83	660	.....	.....
West Roxbury..	196	.....	86	2,234	1,638	.....	.....	2,013	66
Brighton	.....	5	91	2,469	1,123	.....	1,221	.....	.....
Totals.....	196	35	9,906	30,899	54,455	184	16,268	2,013	66

As a matter of record, the following list is given of the work done for the Paving Division of the Street Department, from February 1, 1904, to February 1, 1905:

BOSTON PROPER.

(North of Massachusetts avenue.)

Albion street, northerly corner Compton street. Measurement to locate old curb and measurement for assessment.

Albion street, Paul street to Dover street. Grade for edgestone and measurement of edgestone, roadway and sidewalk paving.

Ashburton place, at Law School. Measurement of sidewalk paving.

Ashburton place, easterly corner Bowdoin street. Grade of edgestone tested.

Beacon street, No. 310. Measurement of sidewalk paving.

Berkeley street, Commonwealth avenue to Public Alley No. 437. Grade of edgestone tested, grade for inside, and measurement of sidewalk paving.

Blackstone street, Hanover street to passageway. Grade for bulkhead.

Boylston street, Nos. 324 and 326. Grade of edgestone tested, grade for inside, and measurement of sidewalk paving.

Boylston street, Nos. 379 and 381. Grade of edgestone tested and measurement of sidewalk paving.

Boylston street, Nos. 769 to 791. Grade of edgestone tested, grade for inside, and measurement of sidewalk paving.

Bowdoin street, easterly corner Ashburton place. Grade of edgestone tested.

Broad street, easterly side, Franklin street to Wharf street. Line and grade for edgestone, line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

Butler square, at Chatham street. Grade of edgestone tested, grade for inside, and measurement of sidewalk paving.

Canal street, No. 106. Grade of edgestone tested and measurement of sidewalk paving.

Causeway street, No. 73. Grade of edgestone tested (twice), grade for edgestone, grade for inside, and measurement of sidewalk paving.

Causeway street, Nos. 119 to 123. Grade of edgestone tested (twice), grade for edgestone, and measurement of sidewalk paving.

Chatham street, at Butler square. Grade of edgestone tested (twice), grade for edgestone, grade for inside, and measurement of sidewalk paving.

Columbus avenue, at Chandler street. Grade of edgestone tested.

Compton street, easterly side, Tremont street to Albion street. Measurement to locate old edgestone and measurement for assessment.

Compton street, Tremont street to Village street. Measurement of edgestone, roadway and sidewalk paving.

Congress square, southwesterly corner Congress street. Grade of edgestone tested, grade for inside, and measurement of sidewalk paving.

Congress street, northerly corner Congress square. Grade of edgestone tested, grade for inside, and measurement of sidewalk paving.

Congress street, westerly corner Milk street. Line and grade for edgestone tested and grade for inside.

Congress street, No. 130. Grade of edgestone tested.

Cooper street, easterly corner Endicott street. Line and grade for edgestone, line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

Cooper street, northeasterly corner Endicott street. Line and grade for edgestone, line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

Court square, Nos. 32 to 38. Line and grade for edgestone, line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

Court street, at Young's Hotel. Measurement of sidewalk paving.

Court street, in front of Old Court House. Measurement of sidewalk paving.

Dartmouth street, Nos. 115 to 119. Line and grade for edgestone tested, grade for inside and measurement of sidewalk paving.

Devonshire street, No. 115. Line and grade for edgestone tested and measurement of sidewalk paving.

Draper's lane, at Newland street. Measurement of edgestone, roadway and sidewalk paving.

East Concord street, Washington street to Albany street. Line and grade for edgestone.

Emerald street, No. 70 to 78. Line and grade for edgestone, line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

Endicott street, easterly corner Cooper street. Line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

Endicott street, northeasterly corner Cooper street. Line and grade for edgestone, line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

Federal street, Nos. 49 and 51. Grade of edgestone tested.

Federal street, westerly corner Milk street. Line and grade for edgestone and grade for inside.

Follen street, line and grade for edgestone and measurement of edgestone, gutter and sidewalk paving.

Franklin street, corner Pearl street. Line and grade for edgestone, line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

Friend street, No. 97. Grade of edgestone tested, grade for inside, and measurement of sidewalk paving.

Gloucester street, Nos. 30 to 36. Grade of edgestone tested (twice), grade for edgestone, grade for inside, and measurement of sidewalk paving.

Hale street. Line and grade for edgestone.

Hanover street, at American House. Grade of edgestone tested, sidewalk tested, and measurement of sidewalk paving.

Hanover street, Commercial street to Ferry. Line and grade for driveway.

Harris street, North street to Hanover street. Measurement for assessment.

Hingham street, Middlesex street to Emerald street. Grade for edgestone and measurement of edgestone, roadway and sidewalk paving.

Hingham street, rear of Nos. 48 and 50 Dover street. Measurement for assessment.

Hollis street, Washington street to Burroughs place. Line and grade for edgestone and measurement of edgestone, roadway and sidewalk paving.

Huntington avenue, Nos. 68 and 70. Grade of edgestone tested, grade for inside, and measurement of sidewalk paving.

Kneeland street, Washington street to Harrison avenue. Line and grade for edgestone.

Kneeland street, Harrison avenue to Tyler street. Grade for edgestone.

Lowell street, Minot street to Brighton street. Grade for gutter.

Mason street, No. 5. Measurement of sidewalk paving.

Middlesex street, Castle street to Hingham street. Line and grade for edgestone.

Milk street, No. 14. Measurement of sidewalk paving.

Milk street, No. 24. Grade of edgestone tested for area.

Milk street, Congress street to Franklin street. Line and grade for edgestone and grade for inside.

Newland street, Upton street to West Brookline street. Grade for edgestone and measurement of edgestone, roadway and sidewalk paving.

Newland street, rear of No. 41 Worcester street. Line and grade for edgestone and measurement for assessment.

North Anderson street, Cambridge street to Massachusetts General Hospital. Line and grade for edgestone.

North Margin street, No. 47. Grade of edgestone tested (twice), grade for edgestone, grade for inside, and measurement of sidewalk paving.

North Margin street, easterly corner Thacher street. Line and grade for edgestone and line and grade for edgestone tested.

Providence street, No. 115. Grade of edgestone tested, line and grade for edgestone, line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

Public alley, No. 431. Southerly corner Gloucester street. Grade of edgestone tested (twice), grade for edgestone, grade for inside, and measurement of sidewalk paving.

Richmond street, Hanover street to North street. Grade for edgestone.

Richmond street, Commercial street to Fulton street. Grade for edgestone.

Shawmut avenue, easterly corner Union Park street. Grade for edgestone, grade of edgestone tested (twice), grade for inside, and measurement of sidewalk paving.

Shawmut avenue, West Canton street to Upton street. Measurement of edgestone, roadway and sidewalk paving.

State street, Nos. 60 and 99. Grade of edgestone tested and measurement of sidewalk paving.

Temple place, No. 48 and 50. Grade of sidewalk tested for area.

Thacher street, at North Margin street. Line and grade for edgestone and line and grade for edgestone tested.

Tileston street, Hanover street to Wiggin street. Line and grade for edgestone.

Tremont street, No. 18 to 28. Grade for edgestone (twice), grade of edgestone tested (twice), grade for inside, and measurement of sidewalk paving.

Tremont street, No. 167. Grade of edgestone tested for area.

Tremont street, No. 458. Measurement to locate old edgestone, measurement of sidewalk paving, and measurement for assessment.

Tremont street, No. 600 to 616. Measurement of edgestone, roadway and sidewalk paving.

Tremont street, No. 679 to 691. Measurement of roadway paving.

Union Park street, easterly corner Shawmut avenue. Grade of edgestone tested (twice), grade for edgestone, grade for inside, and measurement of sidewalk paving.

Washington street, southwesterly corner Haymarket square. Grade for edgestone, grade of edgestone tested, grade for inside, and measurement of sidewalk paving.

Washington street, Court avenue to Cornhill court. Grade of edgestone tested and grade for inside.

Washington street, No. 229 and 231. Measurement of sidewalk paving.

Washington street, No. 387. Grade of edgestone tested.

Washington street, northerly corner West street. Grade of edgestone tested.

Washington street, No. 824. Grade of edgestone tested and grade for inside for area.

Well street, southeasterly corner Franklin street to Wharf street. Line and grade for edgestone, line and grade for edgestone tested, grade for inside and measurement of sidewalk paving.

West street, No. 25 and 27. Grade for edgestone, grade of edgestone tested, grade for inside, and measurement of sidewalk paving.

West street, Washington street to No. 31. Grade of edgestone tested (twice) and grade for edgestone.

West Dedham street, Shawmut avenue to Tremont street. Grade for gutters and measurement of edgestone, roadway and sidewalk paving.

Wharf street, northeasterly side, Broad street to Well street. Line and grade for edgestone, line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

SOUTH BOSTON.

Bolton street, between E street and F street. Line and grade for edgestone and measurement of edgestone, roadway and sidewalk paving.

Bolton street, between F street and Dorchester street. Line and grade for edgestone and measurement of edgestone, roadway and sidewalk paving.

Boston place, both corners of Dorchester street. Corners put in for construction.

Covington street, between Dixfield street and East Eighth street. Line and grade for edgestone.

Dorchester avenue, intersection of Dorchester street. Curve staked out for construction.

Dorchester street, between West Eighth street and Dorchester avenue. Line given for construction at angles and all corners of intersecting streets.

E street, between Bolton street and West Second street. Line and grade for edgestone and measurement of edgestone, gutter and sidewalk paving.

East First street, No. 599. Estimate of amount of edgestone required, and inside grade for bulkhead.

East Second street, No. 705. Estimate of amount of edgestone required, and line and grade for edgestone.

East Second street, No. 707. Line and grade for edgestone.

East Fifth street, No. 599. Grade of edgestone tested and inside grade for bulkhead.

East Sixth street, between P street and Q street. Measurement of edgestone and sidewalk paving, and plan for sidewalk assessment.

East Seventh street, in front of Oliver H. Perry School-house lot. Line and grade for edgestone.

East Eighth street, southeasterly corner of Dorchester street. Corner put in for construction.

East Eighth street, in front of Oliver H. Perry School-house lot. Line and grade of edgestone tested.

East Ninth street, both corners of Dorchester street. Corners put in for construction.

Emmet street, both corners of East Second street and East Third street. Line and grade for return stones.

F street, between West First street and West Second street. Line and grade for edgestone and measurement of edgestone, roadway and sidewalk paving.

F street, between West Second street and Bolton street. Measurement of edgestone, gutter and sidewalk paving.

Frederick street, between West Ninth street and Old Colony avenue. Estimate of amount of edgestone required, line and grade for edgestone, revised grade for edgestone, measurement of edgestone and sidewalk paving, and plan for sidewalk assessment.

G street, between East Broadway and East Fourth street. Line and grade for edgestone.

G street, between East Eighth street and Columbia road. Line and grade for edgestone and measurement of edgestone, gutter and sidewalk paving.

Gold street, between E street and F street. Line and grade for edgestone.

Gold street, between F street and Dorchester street. Line and grade for edgestone.

Jenkins street, both corners of Dorchester street. Corners put in for construction.

K street, between East Ninth street and Columbia road. Line and grade for edgestone (twice).

Middle street, both corners of Dorchester street. Corners put in for construction.

Newman street, both corners of Dorchester street. Corners put in for construction.

Old Colony avenue, four corners of Dorchester street. Corners put in for construction.

P street, between East Sixth street and Columbia road. Measurement of edgestone and sidewalk paving and plan for sidewalk assessment.

Preble street, intersection of Dorchester street. Curve staked out for construction.

Rogers street, both corners of Dorchester street. Corners put in for construction.

Silver street, between D street and E street. Line and grade for edgestone.

Summer street, southeasterly corner A street. Line and grade of edgestone tested, line and grade for edgestone, line and grade of edgestone tested, inside grade for artificial stone sidewalk, inside grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Summer street, Nos. 279–283. Grade of edgestone tested, line and grade for edgestone, line and grade of edgestone tested (twice), inside grade for artificial stone sidewalk, inside grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Tuckerman street, both corners of Dorchester street. Corners put in for construction.

Vale street, both corners of Dorchester street. Corners put in for construction.

Vale street, Nos. 45–47. Line and grade for edgestone.

Vale street, Nos. 51–53. Line and grade for edgestone.

Vinton street, both corners of Dorchester street. Corners put in for construction.

Ward street, both corners of Dorchester street. Corners put in for construction.

West First street, at junction of F street. Measurement of edgestone, roadway and sidewalk paving.

West Third street, southeasterly corner of F street. Estimate of amount of edgestone required and line and grade for edgestone.

West Third street, Nos. 186–194. Measurement of sidewalk paving for sidewalk assessment.

West Seventh street, between C street and D street. Line and grade for edgestone and measurement of edgestone, roadway and sidewalk paving.

West Eighth street, southwesterly corner of Dorchester street. Corner put in for construction.

West Ninth street, both corners of Dorchester street. Corners put in for construction.

Woodward street, both corners of Dorchester street. Corners put in for construction.

EAST BOSTON.

(Including Breed's Island.)

Bennington street, No. 622. Line and grade of edgestone tested, line and grade for edgestone, grade for inside marked, and measurement of artificial stone sidewalk.

Bennington street, between Saratoga street and Leyden street. Points for construction.

Bennington street, between Prescott street and Bremen street. Points for construction.

Bremen street, Nos. 194 and 200. Line and grade for setting edgestone.

Bremen street, Nos. 202 and 204. Estimate of edgestone required and line and grade for setting edgestone.

Brooks street, Nos. 225 and 227. Line and grade for setting edgestone.

Byron street, between Bennington street and Paul Jones School. Line and grade for setting edgestone and measurement for assessment.

Byron street, at Paul Jones School. Estimate of edgestone required. Line and grade for setting edgestone.

Condor street, Nos. 167 to 181. Estimate of edgestone required and line and grade for setting edgestone.

Haynes street, between Orleans street and Marginal street. Line and grade for resetting edgestone and measurement of edgestone, sidewalk, crosswalk and roadway paving.

Horace street, at Paul Jones School. Estimate of edgestone required and line and grade for setting edgestone.

Lamson street, between Maverick street and Sumner street. Measurement for assessment.

Maverick street, between Boston, Revere Beach & Lynn Railroad and Jeffries street. Line and grade for resetting edgestone.

Maverick street, No. 325. Line and grade for setting edgestone.

Maverick street, No. 333. Estimate of edgestone required, line and grade for setting edgestone, and measurement of edgestone set.

New street, Nos. 14, 16, 28 and 32. Measurement for assessment.

New street, between Sumner street and Maverick street. Line and grade for resetting edgestone and roadway paving.

Orleans street, between Sumner street and Maverick street. Measurement for assessment.

Pope street, between Saratoga street and Curtis street. Line and grade for setting edgestone, measurement of edgestone and gutter paving, and measurement for assessment.

Putnam street, between Condor street and East Eagle street. Measurement for assessment.

Saratoga street, from railroad crossing to Swift street. Line and grade for resetting edgestone, measurement of edgestone, sidewalk, gutter and crosswalk paving, and measurement for assessment.

CHARLESTOWN.

Arlington avenue, Alford street to Fred street. Line and grade for resetting edgestone and measurement for assessment.

Benedict street, rear Nos. 1 to 4 Brown's court. Line and grade of edgestone tested, line and grade for edgestone, line and grade of edgestone tested, grade for inside, and measurement of sidewalk paving.

Dorrance street, between Alford street and Arlington avenue. Line and grade for resetting edgestone.

Monument street, between Bunker Hill street and Medford street. Line and grade for resetting edgestone and measurement of edgestone, roadway, driveway, crosswalk and sidewalk paving.

Polk street, between Bunker Hill street and Medford street. Line and grade for resetting edgestone.

Russell street, between Auburn street and Sullivan street. Line and grade for resetting edgestone.

Rutherford avenue, at Freight House No. 6, Boston & Maine Railroad. Line and grade for resetting edgestone.

ROXBURY.

(South of Massachusetts avenue.)

Adams street, No. 14. Line and grade for edgestone, line and grade for edgestone tested, grade for inside and measurement of sidewalk paving.

Arklow street, northwesterly corner Ulmer street. Line and grade for edgestone.

Bay State road, No. 231. Grade for edgestone, grade of edgestone tested, grade for inside and measurement of sidewalk paving.

Bellevue street, Brookline avenue to Park street. Line and grade for gutters and measurement of gutters and crosswalk paving.

Bickerstaff street, Nos. 56 and 58. Measurement of sidewalk paving.

Bromley park. Line and grade for edgestone.

Bryant street, easterly corner St. Stephen street. Grade of edgestone tested.

Calumet street, Nos. 31 and 35. Line and grade for edgestone.

Camden street, northeasterly side, Columbus avenue to Watson street. Revised grade for edgestone.

Camden street, southwesterly side, Columbus avenue to railroad. Line and grade for edgestone.

Camden street, at Tremont street. Measurement of sidewalk paving.

Centre street, Nos. 167 and 169. Measurement for assessment.

Centre street, No. 377. Line and grade for edgestone.

Clarence street. Measurement to locate old edgestone, measurement for assessment, line and grade for edgestone, and measurement of edgestone, gutter, crosswalk and sidewalk paving.

Clarence street, at George street. Grade of edgestone tested.

Columbus avenue, at Northampton street. Measurement of sidewalk paving.

Commonwealth avenue, No. 617. Measurement of sidewalk paving.

Commonwealth avenue, Nos. 619 and 621. Grade for edgestone, grade of edgestone tested, grade for inside and measurement of sidewalk paving.

Creighton street, No. 32. Line and grade for edgestone.

Dudley street, southwesterly side, east of Mount Pleasant avenue. Line and grade for edgestone.

Dudley street, southerly side, Hampden street to Warren street. Measurement of edgestone, roadway and sidewalk paving.

Francis street, No. 30. Line and grade for edgestone.

Francis street, Huntington avenue to Brookline avenue. Grade for edgestone.

George street, southwesterly side, Magazine street to Langdon street. Grade of edgestone tested.

Hampden street, easterly side, Norfolk avenue. Measurement of edgestone, roadway and sidewalk paving.

Harold street, easterly corner Hollander street. Line and grade for edgestone.

Harold street, westerly corner Hollander street. Line and grade for edgestone.

Harold street, Nos. 253 and 255. Line and grade for edgestone, line and grade for edgestone tested, and measurement of sidewalk paving.

Haviland street, Nos. 5, 11 and 13. Measurement of sidewalk paving.

Haviland street, northeasterly corner Hemenway street. Revised grade for edgestone and measurement of sidewalk paving.

Hemenway street, northeasterly corner Haviland street. Revised grade for edgestone and measurement of sidewalk paving.

Hollander street, westerly corner Harold street. Line and grade for edgestone.

Humboldt avenue, No. 214. Line and grade for edgestone tested (twice), and measurement of sidewalk paving.

Hunneman street, Nos. 93 to 97. Measurement of sidewalk paving.

Hutchings street, westerly corner Park View street. Line and grade for edgestone.

Hutchings street, No. 99. Line and grade for edgestone, line and grade for edgestone tested, grade for inside and measurement of sidewalk paving.

Hutchings street, Humboldt avenue to Harold street. Measurement to locate old edgestone, line and grade for edgestone, measurement of edgestone, gutter and sidewalk paving and measurement for assessment.

Hutchings street, Nos. 112, 111 and 104. Line and grade for edgestone tested and measurement of sidewalk paving.

Kendall street, at Tremont street. Measurement of sidewalk paving.

Lamartine street, Hoffman street to Wyman street. Measurement to locate old edgestone, line and grade for edgestone, measurement of edgestone, roadway and sidewalk paving and measurement for assessment.

Langdon street, northwesterly side, No. 22 to George street. Grade for edgestone.

Longwood avenue, Huntington avenue to Phillips street. Measurement of roadway paving.

Mountfort street, Nos. 49 and 51. Measurement of sidewalk paving.

Newbury street, southerly corner Charlesgate west. Line and grade for edgestone, line and grade for edgestone tested and grade for inside.

Norfolk avenue, Hampden street to Magazine street. Line and grade for edgestone, line and grade for edgestone tested, and measurement of edgestone, roadway and sidewalk paving.

Norfolk avenue, Magazine street to Marshfield street. Line and grade for edgestone.

Northampton street, Tremont street to Columbus avenue. Line and grade for edgestone, measurement of edgestone, roadway, and sidewalk paving, and measurement for assessment.

Northfield street, at Tremont street. Measurement of sidewalk paving.

Park View street, southerly and westerly corners Hutchings street. Line and grade for edgestone tested.

Paulding street, Dale street to Bainbridge street. Grade for gutters.

Peterborough street, Nos. 22 to 32. Measurement of sidewalk paving.

Queensbury street, westerly corner Audubon road. Grade for edgestone.

Quincy street, No. 35. Measurement of sidewalk paving.

Ruthven street, No. 133. Measurement of sidewalk paving.

St. Botolph street, No. 241. Line and grade for edgestone, line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

St. Stephen street, easterly corner Bryant street. Grade of edgestone tested.

Shirley street, Dudley street to George street. Measurement to locate old curb.

Shirley street, southeasterly side, No. 29 to George street. Line and grade for edgestone and measurement for assessment.

Shirley street, from Massachusetts avenue south to bend. Line and grade for edgestone.

Southampton street, Massachusetts avenue to Atkins street. Grade for edgestone.

Station street, Columbus avenue to railroad. Roadway paving.

Thorndike street, Washington street to Reed street. Line and grade for edgestone.

Townsend street, No. 178. Grade of edgestone tested, line and grade for edgestone, line and grade for edgestone tested, grade for inside, and measurement of sidewalk paving.

Tremont street, southeasterly side, Northampton street to Camden street. Grade for edgestone.

Tremont street, Massachusetts avenue to Hammond street. Measurement of edgestone, roadway and sidewalk paving.

Ulmer street, northerly corner of Arklow street. Line and grade for edgestone.

Ulmer street, Minden street to Arklow street. Grade for grading.

Wait street, Huntington avenue, southerly corner. Measurement to locate old edgestone and measurement for assessment.

Wait street, westerly side, Huntington avenue to Pequot street. Line and grade for edgestone.

Wait street, westerly side, Hillside street to Pequot street. Line and grade for gutters.

Washington street, northwesterly side Oakland street. Measurement of edgestone, roadway and sidewalk paving.

Waumbeck street, No. 38. Line and grade for edgestone tested, line and grade for edgestone and measurement of sidewalk paving.

Westfield street, at Tremont street. Measurement of roadway and sidewalk paving.

Whiting street, No. 59. Measurement of sidewalk paving.

Wyman street, easterly corner Lamartine street. Line and grade for edgestone.

Wyman street, Lamartine street to Chestnut avenue. Line and grade for gutter.

DORCHESTER.

Adams street, Nos. 19, 21 and 23. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Adams street, Nos. 1156 and 1158. Line and grade for setting edgestone.

Adams street, northeasterly corner of King street. Line and grade for setting edgestone.

Algonquin street, No. 42. Line and grade of edgestone tested, street line and grade marked, and measurement of artificial stone sidewalk.

Arcadia street, No. 16. Line and grade for setting edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Armandine street, Nos. 36 and 41. Line and grade for setting edgestone.

Ashmont street, No. 336. Line and grade for paving gutters.

Ashmont street, from Adams street to Neponset avenue. Line and grade for resurfacing street.

Auckland street, No. 38. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Auckland street, Nos. 85 and 89. Line and grade for setting edgestone.

Auckland street, No. 92. Line and grade for setting edgestone.

Bird street, Nos. 10 to 16. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Bloomfield street, Nos. 67 to 71. Measurement of artificial stone sidewalk.

Bodwell street. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Bowdoin avenue, Nos. 41 and 43. Line and grade for artificial stone sidewalk, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Bowdoin avenue, Nos. 47, 49, 51, 53, 55, 59 and 61. Line and grade for artificial stone sidewalk, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Bowdoin avenue, Nos. 75, 77 and 81. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Bowdoin street, No. 137. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Bowdoin street, Nos. 139, 141 and 143. Line and grade for resetting edgestone, line and grade of edgestone tested, street line and grade marked, and measurement of artificial stone sidewalk.

Bowdoin street, Nos. 232 and 234. Line and grade of edgestone tested, street line and grade marked, and measurement of artificial stone sidewalk.

Bowdoin street, corner Tebroc street. Line and grade for setting edgestone.

Blue Hill avenue, Johnston road to Randolph road. Line and grade for setting edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Bradlee street, No. 36. Line and grade for edgestone.

Brookford street, Nos. 9 and 11. Line and grade for edgestone.

Bullard street, Bowdoin avenue to Bowdoin street. Line and grade for edgestone, and measurement of edgestone and gutter paving.

Capen street, southeasterly corner Norfolk street. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk, and measurement of artificial stone sidewalk.

Cedar street, Nos. 1 to 9. Line and grade for edgestone.

Centre street, Nos. 51 to 55. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Centre street, No. 299. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Centre street, corner Talbot avenue. Line and grade for setting edgestone, line and grade of edgestone tested, street line and grade marked, line and grade for artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Charles street, northwesterly corner Dorchester avenue. Measurement of artificial stone sidewalk.

Charlotte street, No. 28. Measurement of artificial stone sidewalk.

Chickatawbut street. Line and grade for resurfacing street.

Chickatawbut street, Nos. 12, 14 and 20. Line and grade for edgestone.

Chickatawbut street, Nos. 32 and 34. Line and grade for edgestone.

Claybourne street, from Dakota street 300 feet south. Line and grade for setting edgestone.

Claybourne street, Nos. 34, 36, 38, 27, 31, 35, 39 and 43. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Clifton street. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Coleman street, No. 92. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Columbia road, at Elder street. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Columbia road, No. 410. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Devon street. Measurement of artificial stone sidewalk.

Dix street, No. 21. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Dix street, No. 23. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Dix street, No. 47. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Dix street, No. 61. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Dix street, No. 63. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Dorchester avenue, Nos. 852 to 868. Line and grade of edgestones tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Dorchester avenue, Nos. 1591 to 1595. Line and grade of edgestones tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Dorchester avenue, No. 1631. Line and grade for resetting edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Dorchester avenue, No. 1721. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Dorchester avenue, Grafton street to Mt. Vernon street. Line and grade for repaving street.

Draper street, Nos. 102 to 110. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

East Cottage street. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

East Cottage street, Nos. 153 and 155. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

East Cottage street, No. 165. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Florida street, northwesterly corner Lonsdale street. Measurement of artificial stone sidewalk.

Freeport street, No. 331. Line and grade of street tested.

Glendale street, No. 20. Line and grade for edgestone.

Glenway street. Measurement of artificial stone sidewalk.

Glenway street, Nos. 35 and 37. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Hamilton street, Bowdoin street to Mt. Everett street. Line and grade for edgestone.

Hancock street, Nos. 53, 57 and 61. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Harbor View street, Dorchester avenue to Sydney street. Line and grade for resurfacing street.

Harbor View street, No. 71. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Harvard street, Nos. 17 and 19. Line and grade for resetting edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Harvard street, Nos. 161, 165, 167 and 190. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

King street, Nos. 91 to 101. Measurement of artificial stone sidewalk.

Lauriat avenue, near Milton avenue. Measurement of artificial stone sidewalk.

Lincoln street, line and grade for edgestone.

Magnolia street, Nos. 82 to 88. Line and grade for resetting edgestone, line and grade of edgestone tested, street line and grade marked and line and grade of artificial stone sidewalk tested.

Mather street, No. 3. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested and measurement of artificial stone sidewalk.

Mayfield street. Measurement of artificial stone sidewalk.

McLellan street, Nos. 21, 25, 27 and 29. Line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Mellen street, Nos. 18 and 20. Measurement of artificial stone sidewalk.

Melville avenue, No. 56. Line and grade for edgestone.

Michigan avenue, Nos. 2, 4 and 6. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Montello street, corner of Arcadia street. Line and grade for edgestone.

Morton street, Nos. 1167 and 1169. Line and grade for edgestone.

Neponset avenue, Minot street to Neponset river bridge. Line and grade for resetting edgestone and measurement of edgestone and paving.

Neponset avenue, at Minot school. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Neponset avenue, Nos. 19, 21 and 23. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Norfolk avenue, East Cottage street to Marshfield street. Line and grade for edgestone and measurement of edgestone and gutter paving.

Norfolk avenue, No. 297. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested and measurement of artificial stone sidewalk.

Norfolk street, corner of Capen street. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Norfolk street, at corner of Morton street. Line and grade for setting edgestone.

Norfolk street, Washington street to Norfolk terrace. Line and grade for resetting edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Norton street, Nos. 44 to 50. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Park street, Adams street to Freeport street. Line and grade for resurfacing street.

Pinckney road, No. 14. Line and grade for edgestone.

Plain street. Line and grade for resurfacing street.

Rockwell street, Nos. 21, 25 and 27. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Rockwell street, Nos. 49, 55 and 57. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Rockwell street, No. 52. Line and grade for edgestone.

Rockwell street, No. 53. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Rosseter street, No. 107. Line and grade for edgestone.

Sagamore street, No. 58. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

School street, Nos. 2 and 4. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Stanley street, No. 71. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Stoughton street, Nos. 78, 80 and 84. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Sumner street, corner of Stoughton street. Line and grade for edgestone, line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Thetford street, Nos. 62 and 64. Line and grade for edgestone.

Tremlett street, near Waldeck street. Line and grade for resetting edgestone.

Tremlett street, Nos. 33, 35 and 37. Measurement of artificial stone sidewalk.

Wales street, No. 36. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Waldeck street, No. 12. Measurement of artificial stone sidewalk.

Walnut street, No. 4. Line and grade of edgestone tested, street line and grade marked, line and grade of artificial stone sidewalk tested, and measurement of artificial stone sidewalk.

Wayland street, No. 65. Line and grade for setting edgestone.

Wendover street. Line and grade for artificial stone sidewalk.

WEST ROXBURY.

Belmore terrace, No. 9. Information furnished for sidewalk assessment.

Bourne street, northeasterly corner Catherine street. Line and grade for edgestone.

Boylston street, No. 33. Line and grade of edgestone tested, inside grade mark for artificial stone, and measurement of artificial stone.

Brookside avenue, No. 120. Line and grade for edgestone.

Brown avenue, westerly corner Ashland street. (Church of the Sacred Heart). Information furnished for sidewalk assessment.

Canterbury street, between Ashland street and the railroad bridge. Measurement of excavation and gutter paving.

Canterbury street, Ashland street to the railroad bridge. Line and grade for laying gutters.

Canterbury street, Poplar street to the railroad bridge. Line and grade for filling.

Catherine street, northeasterly corner Bourne street. Line and grade for edgestone.

Centre street, at Engine House No. 28. Profile to fix grades for crosswalks and line and grade for laying crosswalks.

Centre street, at intersection of Mt. Vernon street. Line and grade for concrete sidewalks and measurement of concrete paving.

Centre street, between Mt. Vernon street and La Grange street. Line and grade for edgestone and gutters.

Centre street, Nos. 436 and 438. Line and grade for edgestone.

Dalrymple street, at Georgiana street. Line and grade for edgestone.

Florence street, No. 8. Estimate of edgestone required, and line and grade for edgestone.

John A. Andrew street, Nos. 10 to 14. Line and grade for edgestone.

John A. Andrew street, No. 30. Line and grade for edgestone, line and grade of edgestone tested, inside grade for artificial stone marked, artificial stone tested, and measurement of edgestone, artificial stone and gutter paving.

Mt. Vernon street, Vermont avenue to Garfield street. Line and grade for laying gutters.

Mt. Vernon street, at intersection of Centre street. Line and grade for concrete sidewalks and measurement of concrete paving.

Poplar street, Washington street to Sycamore street. Line and grade for edgestone and laying gutters, and measurement of edgestone, excavation, gutter and crosswalk paving.

Poplar street, Sycamore street to Washington street (both sides). Information for sidewalk assessment.

School street, No. 167. Estimate of edgestone required, plan and profile to fix grade, line and grade of edgestone, and measurement of edgestone, gutter and sidewalk paving.

South street, Jamaica street to Eliot street. Line and grade for macadamizing street.

South street, from No. 294 to Walk Hill street. Estimate of edgestone required.

South street, No. 1007. Line and grade for artificial stone sidewalk, inside grade marked, and measurement of artificial stone sidewalk.

South Fairview street, Robert street to South Walter street. Line and grade for laying gutters.

Sycamore street, between Ridge street and Florence street. Line and grade for laying gutters.

Tappan street, Nos. 23 and 36. Estimate of edgestone required, line and grade for edgestone, line and grade of edgestone

tested, inside grade for artificial stone marked, artificial stone tested, and measurement of artificial stone sidewalk.

BRIGHTON.

Ashford street, Pratt street to Malvern street. Line and grade for edgestone, gutters and macadamizing street.

Bennett street, northerly corner, No. 52 Parsons street. Line and grade for edgestone, line and grade of edgestone tested, inside grade for artificial stone sidewalk, and measurement of artificial stone, edgestone and gutter paving.

Bradbury street, Franklin street to Mansfield street. Line and grade for laying gutters.

Brighton avenue, No. 95. Line and grade for resetting edgestone, measurement of edgestone, gutter and sidewalk paving, and sidewalk assessment plan furnished.

Cambridge street, Union square to Harvard street. Line and grade for resetting edgestone, laying gutters, macadamizing street, and measurement of edgestone, sidewalk, crosswalk and gutter paving.

Cambridge street, northerly side Charles-river bridge to Boston & Albany Railroad bridge. Line and grade for resetting edgestone and measurement of edgestone and gutter paving.

Cleveland avenue, northeasterly corner Everett street. Line and grade for edgestone.

Commonwealth avenue, northerly side, west of Cottage Farm. Profile of edgestone to fix grade, and line and grade of edgestone.

Easton street, Franklin street to Mansfield street. Line and grade for laying gutters.

Everett street, No. 25. Edgestone inspected and estimate of edgestone required to prevent sidewalk flooding.

Everett street, northeasterly corner Cleveland avenue. Line and grade for edgestone.

Faneuil street, northerly corner Hobart street. Line and grade for circles.

Franklin street, easterly side, between Lincoln street and Alcott street. Line for constructing sidewalk.

Gardner street, Nos. 19, 21, 54, 75, 76 and 79. Measurement of artificial stone sidewalk repairs.

Hobart street, northerly corner Faneuil street. Line and grade for circles.

Mansfield street, Easton street to Alcott street. Line and grade for laying gutters.

Market street, southeasterly corner North Beacon street. Estimate of edgestone required and line and grade for edgestone.

North Beacon street, Nos. 210–212. Estimate of edgestone required and line and grade for edgestone.

Riverdale street, Western avenue to Raymond street. Line and grade for laying gutters.

Sutherland road. Line and grade for artificial stone sidewalk, inside grade marked, and measurement of artficial stone.

PLANS

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" 18	School-houses and miscellaneous plans	95
" 19	Plans from actual survey in City Proper	130
" 20	Profiles of City Proper and Boston Harbor, and ancient plans	91
" 21	Plans and profiles of streets in East Boston, 1849	45
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" 24	" " " " " " " " 1860	39
" 25	" " " " " at South End	21
" 26	" " " " " in Church and Suffolk streets Districts	38
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" 28	Miscellaneous plans, estates, etc	79
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" 31	Official plans from 1851 to 1854	103
" 32	Plans of estates	165
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[1] Vol. 8 is a set of Architects' plans, and has been transferred to the Public Buildings Department.

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" 50	Third Parish and Grammar School lands in Roxbury	57
" 51	Plans of widenings in Roxbury	59
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" 53	Profiles of streets in Roxbury	76
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" 57	Plans of widenings in Brighton	25
" 58	" " estates in Brighton	115
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" 63	Profiles of streets	58
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" 98	Plans of estates, etc.	104
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" 100	Sectional plans, City Proper, pipe locations	12
" 101	" " South Boston, west of G street	24
" 102	" " " " east " " "	19
" 103	" " East " southeast of Bremen st.	27
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" 106	Tracings of plans and profiles	125
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" 111	Assessors' plans, 1, Roxbury and West Roxbury	59
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" 121	" " 9A, Dorchester	149
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" 126	Hale's street maps of Boston, Whitmore reproduction	144
" 127	Sectional plans, City Proper, Boston Gas Light Co.	37
" 128	Public lands belonging to town of Dorchester	15
" 129	Copies of plans filed with town of Dorchester previous to annexation	65
" 130	Copies of deed plans and plans of other surveyors	363
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" 132	" " " " " " " " "	17
" 133	Copies of plans from Land Court	205
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" Drawer B	Plans and profiles of streets in Dorchester	374
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" Cases CC	Miscellaneous rolled plans	1,053
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" " G	South Boston plans and profiles	353
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" " L	Official plans, profiles, etc	3,775
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	Indexed plans of Dorchester	2,578
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Indexed.	General Head under which Classified.	Number of Plans.
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	Brighton	39
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There are also 3,770 lithographed plans in the office at Old Court House not included in the foregoing list, viz.:

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" " " " " 1880	126
" " " West Roxbury, made in 1873	11
" " " Fort Hill, made in 1866–69	80
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" " " North street, made in 1859	44
" " " Stony brook, drainage area	10
" " " Boston, made in 1866–67	98
" " " Boston, made in 1888	30
" " " Suffolk-street district. made in 1869	9
" " " South Boston, made in 1880	60
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" " " Burnt district	65
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" " " Winthrop Farm	49
" " " Hanover avenue	44
" " " Muddy river	41
" " " Pemberton square, Court-house site	195
" " " East Newton street, lots on, sold by auction, made in 1888	42
" " " Public lands in South Boston, sold by auction, made in 1885	82
" " " Public lands in South Boston, sold by auction, made in 1888	8
" " " Boylston street, old Public Library lot	17
" " " Public lands in South Boston, sold by auction, made in 1882	136
" " " Boston Directory map, made in 1886	60
" " " Boston, scale 1,600 feet to an inch, made in 1890	98
Carried forward	3,129

Brought forward		
Lithographed maps of	Boston, scale 800 feet to an inch, made in 1891, colored plans	3,129
" " "	Boston Proper, scale 500 feet to an inch, made in 1894	5
" " "	Exhibit No. 1, City Surveyor's Report, 1893	12
" " "	Exhibit No. 2, City Surveyor's Report, 1893	65
" " "	Exhibit No. 3, City Surveyor's Report, 1893	85
" " "	High street, public lands sold by auction .	101
" " "	Beacon Hill, State House site . . .	16
" " "	Harrison avenue, Savage School-house lot, auction plan	38
" " "	Boston Proper, showing changes in street and wharf lines from 1795 to 1895 . .	57
		262
		3,770

[FROM THE CITY ENGINEER'S REPORT TO THE WATER DEPARTMENT.]

The following is some of the most important work done during the past year:

The construction of the Stony Brook conduit in Charlesgate East made it necessary to abandon 300 feet of 48-inch main, which crossed the conduit location immediately north of Commonwealth avenue bridge, under the outlet channel of the Back Bay Fens; the main was relocated over the bridge, and reduced for a distance of 118 feet, within the limits of bridge and conduit, to a 36-inch pipe.

Owing to the proposed subway construction in Washington street it was considered inadvisable to attempt to maintain the 24-inch L. S. main in that street between Boylston and Water streets. A 36-inch main was therefore laid from Washington street, at Boylston, to Milk street, via Essex, Kingston, Otis, Devonshire, Franklin and Congress streets; thence a 24-inch main via Post Office square and Water street was laid and connected with the existing 24-inch main in Washington street at Water street; connections with these new mains were made on Essex street at Oxford street, on Bedford street, on Franklin street, on Milk street and on Water street; 30-inch branches were established at Congress street for the proposed extension to South Boston and at Milk street for the proposed extension northerly. A total curvature of 630° was made in 2,974 lineal feet of the 36-inch pipe, using 18 one-sixteenth and 20 one-thirty-second curves; in 524 feet of 24-inch pipe the total curvature was 607° 30′, and 6 one-eighth and 15 one-sixteenth bends were used. The work was done by the regular force of the Water Department, and was necessarily slow and expensive, as obstacles were continually encountered. For a large part of the distance, particularly at street crossings, the location of so large a pipe virtually meant the reconstruction of existing systems of conduits, water and gas pipes, electric tubes, sewers, etc. The location of this main is through the centre of the Low Service business district, making it possible to develop the distribution system in that territory to the best advantage.

The 30-inch H. S. main in Washington street, Dorchester, was extended from Fairmount street to Codman street,

Average Stated Monthly Heights, in Feet, above City Base, to which Water Rose at Different Stations, on the Boston Water Works.

1904.	Chestnut Hill Pumping Station, Brighton.				Boston Common.				Engine House No. 8, Salem street.				Engine House No. 7, East street.				Engine House No. 38 Congress street, South Boston.			
Month.	8 A.M.	9 A.M.	1 P.M.	5 P.M.	3 A.M.	9 A.M.	1 P.M.	5 P.M.	3 A.M.	9 A.M.	1 P.M.	5 P.M.	3 A.M.	9 A.M.	1 P.M.	5 P.M.	3 A.M.	9 A.M.	1 P.M.	5 P.M.
January	147.2	166.9	162.4	160.9	121.2	134.1	116.8	118.4	119.1	109.5	110.1	113.8	121.1	112.6	115.5	117.3	114.6	103.3	108.9	109.5
February	146.0	167.0	161.6	160.1	120.0	133.3	116.0	116.1	116.4	110.7	111.9	113.9	121.7	115.9	117.2	118.5	115.9	104.7	108.5	110.4
March	149.2	168.3	163.4	159.4	132.2	119.8	121.0	124.8	136.4	116.6	117.7	120.9	138.5	119.8	122.4	124.5	137.9	113.2	116.3	118.7
April*	148.4 163.6	166.1 181.0	163.6 158.0	161.1 158.3	133.3 151.0	127.5 137.5	125.6 125.5	131.6 130.0	139.1	125.7	128.1	128.9	140.1 150.5	127.3 127.5	129.6 128.0	131.5 132.5	136.8 147.0	122.4 119.3	125.3 123.0	127.5 129.0
May	162.8	165.6	160.6	161.2	150.3	123.0	127.9	130.7	159.2	124.2	126.5	131.5	150.3	124.5	129.5	132.3	147.7	119.0	124.3	127.2
June	162.8	165.4	161.2	159.6	151.0	126.5	130.2	133.1	151.5	121.6	123.8	126.9	152.8	126.6	131.7	133.3	148.0	121.7	125.7	129.3
July	165.7	164.9	159.5	159.7	164.1	124.9	129.4	132.0	148.5	120.7	125.6	127.4	154.7	125.2	130.5	132.4	150.6	121.1	126.2	129.1
August	159.5	164.0	159.2	159.9	147.6	124.1	127.2	129.9	145.2	120.5	125.1	128.8	148.9	123.4	129.6	129.6	144.6	116.5	124.1	124.0
September †	156.5 135.4	164.3 162.4	158.8 156.0	157.5 155.6	144.0 128.4	124.4 124.5	127.9 126.6	126.3 126.1	145.0 129.4	121.5 123.9	127.2 128.7	126.3 127.6	146.6 129.4	123.4 125.7	129.1 128.5	128.3 129.3	149.5 125.7	118.4 120.1	125.3 124.3	124.2 125.8
October	152.5	159.4	154.4	152.2	129.8	126.6	128.6	128.4	130.1	124.8	128.8	128.3	130.4	127.3	129.7	128.5	127.7	121.6	125.7	124.0
November	135.0	153.2	153.4	157.2	129.6	126.1	128.4	130.0	129.0	123.9	126.7	127.8	130.3	125.7	128.3	129.5	127.4	121.1	123.9	125.6
December	138.6	163.5	158.3	157.5	124.7	129.1	122.4	124.6	121.6	114.8	116.9	119.9	123.2	117.4	119.7	122.8	119.3	111.5	115.2	116.4

1904.	Boston Water Dept. Yard, 710 Albany street, Roxbury.				Engine House No. 9, Fourth and O streets, South Boston.				Engine House No. 26, Walnut street, Dorchester.				Engine House No. 34, Western avenue, Brighton.				Engine House No. 32, Bunker Hill street, Charlestown.			
Month.	3 A.M.	9 A.M.	1 P.M.	5 P.M.	3 A.M.	9 A.M.	1 P.M.	5 P.M.	3 A.M.	9 A.M.	1 P.M.	5 P.M.	3 A.M.	9 A.M.	1 P.M.	5 P.M.	3 A.M.	9 A.M.	1 P.M.	5 P.M.
January	124.2	115.3	120.2	121.2	113.3	102.0	106.4	108.8	112.5	103.2	108.1	108.6	129.1	121.7	121.8	121.8	160.4	155.2	157.1	158.1
February	122.1	116.0	119.2	120.8	112.0	102.0	106.4	109.4	111.9	101.5	106.6	108.6	128.0	123.7	122.5	122.6	156.5	152.2	153.2	154.3
March	134.0	124.1	126.5	127.0	126.1	112.3	114.5	116.9	126.9	116.7	114.0	116.4	137.5	137.0	137.3	136.4	159.7	155.2	154.5	155.5
April*	140.6 154.0	128.6 137.5	133.0 133.0	134.3 134.0	138.8	124.3	127.5	127.0	139.6 151.0	140.7 140.5	139.2 141.0	139.3 142.0	159.6 151.0	140.7 140.5	139.2 141.0	139.3 142.0	160.2	156.9	157.3	157.8 .....
May	148.8	118.6	126.0	128.0	138.8	121.8	124.3	125.5	146.5	114.0	125.3	125.7	151.7	137.7	139.2	140.6	162.6	153.6	158.0	156.3
June	150.1	120.2	125.4	128.7	153.3	129.2	131.9	135.8	145.5 146.4	117.7 232.2	125.6	128.3	152.0	139.3	140.8	142.5	161.9	159.5	158.7	158.9
July	151.9	118.7	124.2	127.5	154.7	128.2	131.8	134.1	145.1	232.6	.....	.....	155.8	139.3	142.1	141.1	162.5	155.5	157.5	158.3
August	149.9	127.0	129.9	133.4	145.4	117.4	122.3	125.1	145.9	234.7	.....	.....	151.0	138.7	141.6	141.0	162.5	.....	160.6	159.2
September †	148.3 132.0	128.6 128.8	130.0 129.6	131.7 132.7	144.0 127.1	117.6 119.5	121.4 122.4	124.1 124.7	145.9	235.2	.....	.....	149.3 131.3	138.0 139.8	139.8 140.9	138.3 139.3	161.9	157.3	159.1	158.8
October	132.9	130.6	132.3	132.6	128.1	121.6	124.6	126.1	146.2	236.5	.....	.....	150.4	138.3	138.4	137.4	159.9	155.0	156.5	160.5
November	132.9	132.9	132.3	133.4	127.3	121.5	126.5	124.5	146.9	237.6	.....	.....	152.0	140.6	139.8	139.0	162.5	159.9	161.3	162.2
December	126.1	129.1	125.0	126.3	129.8	135.4	114.9	116.2	144.4	236.3	.....	.....	129.3	134.9	135.3	135.9	162.7	158.3	165.0	160.8

1904.	Engine House No. 5, Marion street, East Boston.				City Hall, High Service.		Engine House No. 24, Quincy street, Roxbury. High Service.		Engine House No. 19, Norfolk street, Dorchester. High Service.		Engine House No. 20, Chestnut Hill, Brighton. High Service.		Parental School, Spring Street, West Roxbury. High Service.	
Month.	3 A.M.	9 A.M.	1 P.M.	5 P.M.	3 A.M.	9 A.M.	9 A.M.	9 A.M.	3 A.M.	9 A.M.	3 A.M.	9 A.M.	3 A.M.	9 A.M.
January	147.0	138.6	141.2	142.9	246.1	237.1	245.2	238.2	245.5	241.0	244.7	243.5	.....	.....
February	146.3	134.6	139.6	141.8	246.3	237.2	245.6	237.8	245.7	241.1	244.8	243.9	248.0	243.8
March	157.5	142.8	145.7	147.1	247.1	238.2	247.7	239.9	247.6	242.1	245.8	244.0	248.9	244.8
April*	156.2	156.9	157.3	157.8	246.6	247.7	250.9	251.8	247.6	238.4	248.1	240.3	247.7	242.5
May	162.6	153.6	158.0	156.3	157.1	145.2	149.1	150.7	247.3	236.1	247.7	238.5	247.7	241.4
June	161.9	159.5	158.7	158.9	158.6	147.0	151.1	152.5	247.2	236.1	246.6	236.1	246.5	240.1
July	155.8	139.3	140.8	142.5	158.4	146.6	151.2	152.3	246.9	235.8	246.2	237.4	246.2	239.8
August	151.0	138.7	141.6	141.0	158.5	147.6	151.6	153.2	246.9	237.5	246.6	238.1	246.6	239.9
September †	149.3 131.3	138.0 139.8	139.8 140.9	138.3 139.3	161.9	157.3	159.1	159.8	158.8	148.9	162.0	153.0	247.2	236.5
October	150.4	138.3	138.4	137.4	159.9	155.0	156.5	160.5	157.0	147.8	159.6	152.2	247.8	237.5
November	152.0	140.6	139.8	139.0	162.5	159.9	161.3	162.2	156.9	146.8	159.4	152.4	248.1	238.2
December	129.3	134.9	135.3	135.9	162.7	158.3	165.0	160.8	152.5	143.0	160.3	149.3	246.7	237.2

* Weston aqueduct supplying city.

† Night pressure reduced by operating gates at Chestnut Hill.

‡ On June 20, district in which this gauge is situated was placed on high service.

thence a 20-inch main was laid in Codman street to Dorchester avenue and connected with the 12-inch H. S. pipe at that point.

The following work was done for the improvement of the fire service:

1,327	feet	16-inch	pipe	laid,	replacing	12-inch.
12,562	"	12-inch	"	"	"	8-inch, 6-inch and 4-inch.
4,154	"	10-inch	"	"	"	6-inch and 4-inch.
3,438	"	8-inch	"	"	"	6-inch and 4-inch.

The first step was taken during the past year towards furnishing an improved L. S. and H. S. supply to South Boston flats by the construction of a tunnel under Fort Point channel, immediately south of Congress-street bridge. The tunnel is of brick, in the form of an inverted siphon, to carry a 30-inch L. S. and a 24-inch H. S. water pipe. The shafts are 7¼ feet in diameter with brick walls 16 inches thick; they are enclosed in a steel cylinder ½ inch thick, from their top to a point about 20 feet below the bottom of the channel, and are protected by substantial circular fenders. The horizontal portion of the tunnel, 119 feet long, is circular, 8 feet in diameter, and is lined with 12-inch brickwork; its top is at grade —38, the present bottom of channel being grade —18, and the proposed grade for future dredging being —23. The material excavated was stiff blue clay with sand seams; the work was done under air pressure.

The thawing of frozen service pipes by electricity was successfully continued during the past winter.

The work of electrical investigation has been carried on throughout the year. In addition to surveys made to determine the difference of potential between pipe and rails, twenty-nine "permanent stations" have been established for measuring approximately the actual flow of electricity upon the pipes. These "stations" are made by inserting brass plugs 10 feet apart into a water pipe, and from the plugs No. 10 insulated wire is brought to the surface of the ground. The difference of potential at the ends of the wires is determined, and the approximate flow on the pipe is estimated, the resistance per pound per foot of cast-iron water pipe having been previously determined by experiment. A number of test pits have been dug and many volt-meter and ammeter readings have been taken in other excavations; the actual condition of pipes examined has been carefully noted, plaster casts and photographs being made in many cases.

Damage is being done to the water pipes by electrolysis, notably in the vicinity of the large power stations of the Boston Elevated Railway.

Monthly Rainfall in Inches during 1904 at Various Places in Eastern Massachusetts.

PLACES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Framingham	4.70	3.00	2.69	8.78	2.44	2.70	2.14	3.41	5.64	1.51	1.73	2.96	41.70
Dam 4, Ashland	4.63	3.06	2.76	8.99	2.70	2.27	1 57	3.81	6.08	1.69	1.73	3.11	42.40
Cordaville	5.52	3.08	2.85	9.31	2.60	2.86	1.89	3.92	6.69	1.78	1.80	2.81	45.11
Lake Cochituate	4.75	3.11	2.78	8.68	2.14	2.86	1.80	3.32	6.78	1.66	1.84	2.39	42.11
Chestnut Hill Reservoir	5.64	2 96	2.79	9.18	3.28	2.75	1.48	2.74	5.75	2.21	1.81	2.81	43.40
Spot Pond	5.74	3.08	2.99	9.42	3.98	3.56	1.51	3.47	5.38	1.89	1.75	2.34	45.11
Cambridge Observatory	5.15	2.76	2.85	9.28	3.77	2.64	1.68	2.37	5.84	2.00	1.80	4.35	44.49
Waltham, Boston Manufacturing Company	5.85	3.32	3.10	10.56	3.04	2.98	2.64	3.35	7.22	1.41	2.13	2.82	48.42
Lowell, Locks and Canals Company	4.54	2.48	2.65	9.32	2.98	4.00	1.83	3.21	5.51	1.28	1.51	2.33	41.64
Main Drainage Yard, 795 Massachusetts avenue	4.63	2.70	2.49	10.00	3.71	2.12	1.38	2.86	5.82	2.32	1.96	2.30	42.29
Average of above ten places	5.12	2.96	2.80	9.35	3.06	2.87	1.79	3.25	6.07	1.78	1.81	2.82	43.67

GENERAL STATISTICS.

BOSTON WATER DEPARTMENT.

Daily average amount used through meters during 1904 (gallons)	18,546,000
Number of services February 1, 1905	90,560
Number of meters in service February 1, 1905	4,771
Number of motors under supervision February 1, 1905	124
Number of elevators under supervision February 1, 1905	592
Length of supply and distributing mains in miles February 1, 1905	736
Number of public hydrants in use February 1, 1905	7,614
Yearly revenue from annual water rates	$1,319,841.85
Yearly revenue from metered water	$1,049,831.58
Percentage of total revenue from metered water,	44.3
Yearly expense of maintenance	$564,419.94

[FROM THE CITY ENGINEER'S REPORT TO THE STREET DEPARTMENT.]

ATLANTIC AVENUE RECONSTRUCTION.

The roadway on the water side of Atlantic avenue between Eastern avenue and the southerly driveway leading to Rowe's wharf has been widened about eleven and one-half feet by reducing the width of the sidewalk to about one-half of its former width. Where the old sidewalk was supported by pile work, the whole of the old timber was removed and new hard pine timber substituted. The old piles were capped at a lower grade so as to ensure sound wood for the bearings of the new caps and a large number of new oak piles were driven wherever there was any question of the efficiency of the old piles to carry the new roadway or sidewalk. New catch-basins were built at the new curb line where the roadway was supported by filled material, and at other places cast iron scuppers were set in the curb at frequent intervals to permit the surface water to discharge directly into the docks. The entire paving east of the easterly track of the Boston Elevated Railway and nearly all the paving between the rails of this track was relaid with pitch and pebble joints. A new brick sidewalk was laid for the whole length of the avenue reconstructed, and hard pine fences were built where buildings did not afford proper protection.

The Boston Elevated Railway's stairs at the Rowe's wharf station had not been removed or changed at the close of work in December, so that a small amount of work remains to be done at this point. The work was done under three contracts by D. J. Kiley, Patrick McGovern and the Metropolitan Contracting Company. The work was completed about the middle of December, but final payments have not been made at the date of this report.

CHARLES RIVER AVENUE.

An estimate was made of the cost of putting the Boston end of Charles River bridge in repair for use as a dumping wharf.

CIRCUIT-STREET FENCE.

An iron fence and gate have been built on the wall on Circuit street, Roxbury, at the St. Joseph's church, under a contract with P. J. Dinn & Co., dated October 1, 1904, at a cost of $395.

EAST BOSTON FERRIES.

South Ferry, Boston Side. — A report was made recommending new heads on the three piers; the work was done under the supervision of the Ferry Division.

North Ferry, East Boston Side. — An estimate was made for a new wharf and coal-pocket, and plans for the work have been begun.

Plans have been made for repairing the north pier, but no work has yet been done on it.

FRANKLIN-STREET SUBWAY.

The building of the approaches to the Franklin-street subway, in progress at the date of the last report under a contract with William Crane, dated October 28, 1903, was completed about May 1, 1904, at a total cost of $3,652.05.

The iron railings on the coping of the side walls of the approaches were furnished and erected under a contract with W. A. Snow & Co., dated January 14, 1904, at a cost of $845.35. Under a second contract with the same firm, a hand-rail was placed on the side walls of the approaches at a cost of $254.13.

FORT HILL WHARF.

A report was made recommending repairs on this wharf and renewing the deck on the sanitary wharf. The work was done by Thomas Uniacke at a cost of $900.

GAINSBOROUGH-STREET FOOT-BRIDGE.

A contract was made with the Eastern Bridge and Structural Company, dated March 26, 1904, for building the steel superstructure of the foot-bridge on Gainsborough street, for the sum of $2,700, and the work was completed September 24, 1904.

HARVARD-STREET BRIDGE.

Plans and specifications were made last year by this department for building a new bridge and masonry abutments

at Harvard street over the Midland Division of the New York, New Haven & Hartford Railroad. The contract for building the abutments was awarded to the Metropolitan Contracting Company, and work was commenced about the first of August and completed the latter part of November. The abutments are built of granite, laid solid in Portland cement mortar, with cement concrete backing and foundations. The cost for contract work was $13,394.88.

Upon the abutments was built a through steel plate girder bridge, across the railroad location, on a slight skew, and consists of three girders spaced 22 feet 10½ inches on centres and are 59 feet 6½ inches long, centre to centre of end bearings; the floor beams are of steel, supporting a floor system of hard-pine stringers and 4-inch spruce deck plank, upon which is laid a wearing surface of 2-inch spruce. The centre girder divides the roadway into two parts, each 13 feet 9 inches in the clear; there are two sidewalks, each 7 feet 4½ inches wide, the total width of the bridge being 45 feet 9 inches, centre to centre of girders.

The contract for building the steel superstructure was awarded to the Eastern Bridge and Structural Company of Worcester at a cost of $4,092.94. The work was commenced about the middle of November and the south roadway was opened to travel December 22, and the bridge was completed and opened to travel December 29.

Norfolk-street Bridge.

Plans and specifications were made last year by this department for building a new bridge and masonry abutments at Norfolk street near Dorchester station, over the Midland Division of the New York, New Haven & Hartford Railroad.

The contract for building the abutments was awarded to the Metropolitan Contracting Company; the work was commenced in August and was completed December 24. The abutments are built of granite, laid solid in Portland cement mortar with cement concrete foundations and backing. The total cost for contract work was $26,829.50.

The contract for the steel superstructure was awarded to the Boston Bridge Works, October 18, 1904, for $11,996.

Paving Wharf No. 2, 600 Albany Street.

As stated in the last annual report the old wharf at this place has been replaced by building a granite sea wall on

three sides of it and the space between the walls filled solid with earth and gravel.

The work was done under a contract with John P. Cavanagh, and was completed June 28, at a cost for contract work of $26,240.10.

Some additional dredging was done in the North and South docks by the Bay State Dredging Company at a cost of $730.80.

ASSESSMENT STREETS.

Working plans, specifications and forms of contract were prepared and forwarded to the Street Department for the construction of the following assessment streets:

Belgrade avenue, South street to Anawan avenue.
Bennington street, Prescott street northeasterly 650 feet.
Bernard street, Talbot avenue to N. E. Railroad.
Causeway street, Beverly street northeasterly 142 feet.
Dorchester street, Eighth street to Dorchester avenue.
Franklin street, Cambridge street to B. & A. Railroad.
Hyde Park avenue, Walk Hill street to 288 feet north of Ashland street.

PLANS AND SPECIFICATIONS FOR REPAVING STREETS.

Preliminary surveys were made and the working plans, specifications and forms of contract were prepared and forwarded to the Street Department for repaving the following streets:

**Albion street*, Castle street to Dover street.
**Arlington avenue*, Alford street to Somerville line.
Ashburton place, Bowdoin street to Somerset street.
Barton court, Barton street to Brighton street.
**Beach street*, Harrison avenue to Atlantic avenue.
**Bellevue street*, Brookline avenue to Park street.
**Bolton street*, F street to Dorchester street.
Boylston street, Dartmouth street to B. & A. Railroad bridge.
Boylston street, B. & A. Railroad bridge to Massachusetts avenue.
Bullard street, Bowdoin street to Bowdoin avenue.
Causeway street, Haverhill street across Beverly street.
Columbus avenue, Ferdinand street to B. & A. Railroad bridge.
Court street, Washington street to Tremont street.
Court square, westerly roadway.
E street, West Seventh street to West Eighth street.
East Second street, L street to N street.

* Plans only were forwarded.

Emerald street, Dover street to Castle street.
Essex street, Kingston street to Lincoln street.
Front street, Austin street to Warren avenue.
G street, East Eighth street to Columbia road.
Hamilton street, Bowdoin street to Mt. Everett street.
Harris street, Hanover street to North street.
Hawes street, Congress street to Kilby street.
**Haynes street*, Marginal street to Orleans street.
**Monument street*, Bunker Hill street to Medford street.
Mt. Vernon street, Dorchester avenue to Shoreham street.
**Neponset avenue*, Minot street to Neponset bridge.
**New street*, Maverick street to Cross street.
Norfolk avenue, Marshfield street to East Cottage street.
Norman street, Green street to South Margin street.
Northampton street, Columbus avenue to Tremont street.
**North Bennet street*, Salem street to Hanover street.
Poplar street, Washington street to Sycamore street.
Roxbury street, Washington street to Guild row.
South street, Beach street to Kneeland street.
South Margin street, Staniford street to Norman street.
Warren avenue, Warren Bridge to Front street.
Washington street, Roxbury street to Marvin street.
West Dedham street, Shawmut avenue to Tremont street.
West Newton street, Tremont street to Columbus avenue.
* *West Seventh street*, Dorchester avenue to D street.

MISCELLANEOUS.

Preliminary surveys have been made and plans prepared for repaving the following streets:

Allston street, Brighton avenue to Washington street.
Ashford street, Malvern street to Pratt street.
Bolton street, C street to F street.
Columbus avenue and Park square, Eliot street to Boylston street.
Congress street, Fort Point Channel to Pittsburg street.
Dorchester avenue, Shawmut Branch R.R. to Park street.
East Second street, N street to P street.
Eliot street, Washington street to Columbus avenue.
Essex street, Harrison avenue to Kingston street.
Newland street, West Dedham street to West Brookline street.
Norfolk avenue, Magazine street to Marshfield street.
Orleans street, Sumner street to Webster street.
Shawmut avenue, Springfield street to Massachusetts avenue.
Silver street, D street to G street.
South street, Centre street to Jamaica street.
Union street, Main street to Rutherford avenue.
Warren street, Cambridge street to the Brookline line.
Washington street, Elmore street to Dimock street.

* Plans only were forwarded.

GRADING STREET RAILWAY TRACKS.

Grades for tracks in the following streets have been determined and the necessary surveys made for determining the same.

BOSTON ELEVATED RAILWAY COMPANY.

Arlington avenue, Alford street to the Somerville line.
Belgrade avenue, South street to near Anawan avenue.
Bennington street, Prescott street, northeasterly 650 feet.
Boylston street, Dartmouth street to B. & A. R.R. bridge.
Boylston street, B. & A. R.R. bridge to Massachusetts avenue.
Cambridge street, Harvard avenue to Allston bridge.
Causeway street, Haverhill street to Medford street.
Columbus avenue, Ferdinand street to B. & A. R.R. bridge.
Dorchester avenue, Shawmut Branch R.R. to Park street.
Dorchester avenue, at Washington street (Lower Mills).
Hyde Park avenue, Walk Hill street to Ashland street.
Neponset avenue, Minot street to Neponset bridge.
Roxbury street, Washington street to Guild row.
South street, Centre street to Jamaica street.
Warren avenue, drawbridge to Front street.
Washington street, Roxbury street to Marvin street.
Washington street, Elmore street to Dimock street.
West Seventh street, C street to D street.
Wilton street, Cambridge street to Grant street.

Total length of single track grades, 9.13 miles.

MISCELLANEOUS PLANS, SPECIFICATIONS, ETC.

Atlantic avenue, easterly sidewalk from Broad street to Eastern avenue. A plan was made showing proposed new edgestone line, and grades were determined for said edgestone.

Congress street, at Engine House 38 and 39. A report was made as to the grade of edgestone and roadway in this vicinity.

Dudley street, southerly side from Mt. Pleasant avenue to Mt. Pleasant place. A plan was made showing new location of edgestone, with grades for same, on account of widening the street between the above limits.

Hyde Park avenue, at Stony Brook. A plan and specifications were prepared for rebuilding the wooden bridge at this place on account of the widening of Hyde Park avenue.

Lowell street, Minot street to Brighton street. A plan was made for repaving the northerly side of Lowell street, so that teams might more easily back up to freight house.

Malvern street, Ashford street 180 feet southerly. A study was made for a revised grade of this portion of Malvern street to connect with a proposed revised grade of Ashland street.

South street, *West Roxbury*, from Walk Hill street about 440 feet westerly. A plan was made for revising the grade for sidewalk on southerly side of street.

State street, from Atlantic avenue about 140 feet westerly. A plan was made showing grades for paving roadway in the vicinity of the new Atlantic Chambers.

Washington street, from Townsend street to Forest Hills. An estimate was prepared of the cost of making the sidewalks uniformly 10 feet wide.

Plans showing details of construction of street and other structures have been made from time to time as required. The street book, giving lengths and areas of pavements in accepted streets and public alleys, has been corrected to February 1, 1904, and is now being corrected to February 1, 1905.

MISCELLANEOUS WORK AND CONSTRUCTION IN 1904.

ATLANTIC-AVENUE BRIDGE.

The work of building the six piers in Fort Point channel under the contract with W. H. Ellis, dated October 20, 1902, was completed on May 2; the total amount paid under this contract was $72,573.38.

The abutment at the Boston approach to the bridge and the stone bases for the steel columns of this approach were completed by H. P. Nawn on November 18, at a cost of $1,739.70 for the laying of the stone, the stone itself being furnished under another contract; the above amount included the cost of placing a few bearing stone on the abutment and one pier at the South Boston end of the bridge. Two courses of stone were added to the Boston abutment, increasing its height 2 feet 9½ inches. The stone bases for the steel columns were single blocks, 2 feet 6 inches by 3 feet 6 inches by 1 foot 6 inches, set on the concrete foundations previously built.

On November 28 a contract was made with H. P. Nawn for erecting the pier at the line of the Boston Terminal Company's land, to support the first span of the bridge over the railroad tracks. The foundation for this pier was built in 1901. The pier is of granite, 96 feet in length and 3 feet in width, all faces being perpendicular. There are eleven courses of ashlar of a total height of 22 feet. Upon these there is a bridge seat course 96 feet 8 inches by 3 feet 8 inches by 2 feet 2 inches in height, the top of this course being at grade 38.25 feet above city base. Upon the bridge seat there is a parapet course 80 feet 5 inches long, 2 feet 6 inches wide, with the top at grade 41. This work has been completed, except the pointing of the masonry.

The stone for all of the work on the northerly approach just described was furnished by the Rockport Granite Company at a cost of $6,200.

On November 1 a contract was made with the Pennsylvania Steel Company for furnishing and erecting the steel superstructure of the bridge, with the exception of the draw span. Work on the ground has not yet been begun.

Broadway Bridge.

At the date of the last annual report the lumber called for by the contract with the C. W. Leatherbee Company, dated July 14, 1903, had been delivered; the final estimate was made April 22, the total payment being $8,674.07.

The flooring of the roadway of the bridge and the masonry arches of the spans over Lehigh and Foundry streets, under the contract with Patrick McGovern, dated October 7, 1903, was finished on November 2 at a cost of $18,667.74, including, as an addition to the contract, the cost of reconstructing the South Boston approach to the bridge.

Under another contract with Mr. McGovern, dated April 5, 1904, the Boston approach to the bridge was reconstructed at a cost of $1,756.82.

On both approaches the roadway was surfaced with the standard city pavement of granite blocks on concrete foundation. The old curbstones were reset. The side walls on the Boston approach were built up to the new grade of the street. The sidewalks on the Boston approach were paved with brick, and those on the South Boston approach with artificial stone, according to the standard specifications of the Street Department.

On the spans of the bridge over Lehigh and Foundry streets arches were built between the floor beams for the whole width of the bridge. These arches were of a single course of brick, laid in Portland cement mortar, and covered with Portland cement concrete to the proper grade for receiving the paving.

The roadway on the remainder of the bridge consisted of an under floor of hard pine plank, varying in thickness from 4 to 6 inches, planed and jointed, spiked to 5-inch by 6-inch or 5-inch by 8-inch spiking pieces, the latter being bolted to the steel floor beams. The floor was then painted with two coats of "Cabot's Conservo"; the planking, except where the main girders interfered, was laid at right angles to the line of street, with the crown required for paving; strips of zinc were fastened over the ends of the plank next the curb to carry any drip away from the timber; 6-inch by 6-inch by ½-inch steel angles were spiked to the planking under the curb to pave against; the curb is of cast iron in lengths of about 4 feet, bolted to the steel floor beams. Copper expansion joints were provided in the floor where needed.

The roadway surface, both on the plank and on the concrete arches, was made waterproof by covering the surface with roofing pitch and roofing felt in alternate layers of four

each, the whole being then covered by a coating of pitch, put on by flowing; upon this covering there was laid a layer of concrete from 1 to 2 inches thick, composed of sand and road pitch, put on hot and rolled; upon this was spread a 2-inch layer of paving gravel.

The roadway was paved with granite blocks 6 inches deep, the joints between the blocks being filled with hot pebbles and pitch. All paving in the street railway tracks was done by or at the expense of the Boston Elevated Railroad Company.

On June 27 a contract was made with E. R. Taylor & Co. for constructing asphalt walks on the bridge. This work, was completed on September 13. The price paid was $2.39 per square yard, and the total payment was $4,858.87.

On October 23, 1903, a contract was made with P. J. Dinn for building fences on the Boston end of the bridge. The work was completed on December 30, 1903, at a cost of $1,064.

Another contract was made with Mr. Dinn, dated March 26, 1904, for building the fences on the South Boston end of the bridge; these were completed on August 26 at a cost of $1,985. Mr. Dinn also built a fence on the northerly side of the Boston approach to the bridge, for which he was paid $235.

On February 15 a contract was made with Mr. Dinn for the erection of gates near each end of the draw, for which he was paid $1,000.

In order that the old draw might conform to the new grade of the bridge the draw was raised about 7.5 feet, and new steel girders of the required depth built between the old girders on which the trusses rest and the drum which carries the circular track; a new floor was laid on the draw, the steel work repaired and painted, and the spaces between the ends of the draw and the ends of the permanent bridge left for a future lengthening of the draw were filled by a temporary timber construction. This work was done by the Boston Bridge Works, under an extension of their contract for building the steel superstructure of the bridge. The total amount paid under their contract was $129,538.11.

The paving blocks for the roadway were furnished under a contract with the Rockport Granite Company, dated October 21, 1903; the number furnished was 124,000, at $58.90 per thousand.

Under a contract with Seth Perkins, the remaining portion of the temporary foot-bridge was removed on October 28 at a cost of $545, and a new fender-guard was built on the

southerly side of the bridge, between the Boston side of the channel and the shore, at a cost of $913.79.

The following table showing the progress of the work of reconstructing this bridge, so far as travel has been affected, may be of interest:

Work begun on temporary foot-bridge . .	June 10, 1901
Temporary foot-bridge finished . . .	Aug. 30, 1901
Old bridge closed to travel	Sept. 3, 1901
Temporary foot-bridge opened to travel . .	Sept. 7, 1901
Old Colony Railroad began running trains on its new location	Jan. 3, 1902
Temporary foot-bridge and draw closed to all travel	June 20, 1904
Draw and southerly sidewalk of new bridge opened to foot travel	Aug. 9, 1904
Northerly sidewalk of new bridge opened to foot travel	Aug. 22, 1904
New bridge opened to all travel . . .	Sept. 21, 1904

BROOKLINE-STREET BRIDGE, BOSTON TO CAMBRIDGE.

Surveys have been made of the location of the proposed new bridge between Boston and Cambridge at Essex street, Ward 25, borings have been taken and several preliminary plans made.

CONGRESS-STREET BRIDGE.

Widening of Draw-way.

As stated in the last annual report, the Secretary of War having ordered the draw-way of Congress-street bridge widened to 50 feet necessitated the building of a temporary bridge between Congress-street and Summer-street bridges; the bridge was built under contract with W. H. Ellis & Co. at a cost of $12,586.42; work was begun January 11, and the bridge was completed February 4.

The South Boston end of Congress-street bridge was badly damaged by a vessel March 23, necessitating its closing, and the temporary bridge was opened to travel the following day.

A contract was made with Seth Perkins June 23 for removing part of the South Boston side of the bridge adjoining the channel-way and dredging over the widening; this work was completed July 16, making the draw-way 50 feet wide, but leaving the bridge in an unfinished condition.

A contract was made with Seth Perkins August 29 for driving piles and repairing the bridge near the landings

of the draw and removing some of the lumber from the draw; the work was continued until December 6, the cost of the work being $4,816.36.

October 31 a contract was made with the New England Structural Company for lengthening the draw; the field work was begun in December and is not yet completed.

DUDLEY-STREET GRADE CROSSING.

Plans and estimates have been made during the year for several additional methods of abolishing this grade crossing.

EAST BOSTON GRADE CROSSING.

Estimates have been made of the cost of doing portions of this work.

The Boston & Albany Railroad Company has made considerable progress in the construction of bridges and a drainage system.

EASTERN-AVENUE WHARF.

At the request of the Penal Institutions Department an examination was made of the wharf in April, and a report was made recommending rebuilding the wharf. The wharf was repaired in part, a few piles being driven; some stringers were renewed, and two courses of planking laid on part of the wharf. The work was done by Lawler Bros.

FREEPORT-STREET RETAINING WALL.

Early in the year plans and specifications were prepared for building an extension of the wall on the easterly side of Freeport street, Dorchester. The wall was built by Coleman Bros., under a contract dated December 4, 1903. Work was begun on March 24 and completed on May 20.

The wall built under this contract is 200 feet in length, and of a height varying from 13 feet 7 inches to 16 feet 8 inches. It is of granite rubble laid in Portland cement mortar, and has a cut granite coping. The cost of the work was $4,000.

LONG ISLAND WHARVES.

In April an examination and report was made to the Pauper Institutions Department concerning the shore end of the easterly wharf.

A plan and specifications have been made for replacing the northwest wharf with a longer one and having a longer landing for the boat.

MOUNT WASHINGTON-AVENUE BRIDGE.

Widening of Draw-way.

The Secretary of War having ordered the draw-way of this bridge widened to 50 feet, a contract was made June 23 with Seth Perkins for removing part of the old bridge adjoining the channel-way, making a width of opening of 50 feet and dredging over the widening; the cost of contract work was $1,171.50.

SHAWMUT-AVENUE BRIDGE.

During the year 1904 the superstructure of Shawmut-avenue bridge over the Boston & Albany and the Providence Division of the New York, New Haven & Hartford railroads was rebuilt under the direction of the Engineering Department. The new bridge is a through plate girder bridge of two spans, having a total length of 116 feet 2½ inches between faces of parapets of the abutments and a width of 60 feet between centres of outer girders. Each span is a skew span and has five main plate girders arranged so as to provide two roadways, each 18 feet 3 inches wide in the clear between wheel guards, and two sidewalks each of 7 feet 2 inches clear width. Provision was made for carrying pipes and wires across the bridge beneath the sidewalk floors.

The roadway floor beams are heavy built steel sections and the sidewalk beams are steel angles and channels. Roadway and sidewalk stringers are hard pine, those of the roadway being 12 inches by 14 inches in size. The roadway under-flooring is hard pine plank. The stringers and roadway plank were painted with two coats of "Cabot's Conservo," and the plank is further protected by a waterproofing course consisting of four layers of roofing felt, thoroughly mopped with roofing pitch, over which is a layer of concrete made of sand and road pitch.

The sidewalk surfaces are hard pine plank. The roadways are paved with granite blocks and provided with cast-iron curbs at the wheel guards. Between the curbs and the girders the wheel guards are surfaced with asphalt.

The rebuilding of the superstructure necessitated the building of new granite parapets for the abutments.

Bids for the removal of the old bridge and building the steel superstructure and wooden flooring of the new bridge were received June 16, and the contract awarded to the lowest bidder, the Boston Bridge Works, Incorporated, for $11,598. Cut granite for the new parapets was furnished

by the Rockport Granite Company and set by H. P. Nawn. The waterproofing and paving of the roadways was done by D. J. Kiley and the asphalting of the wheel guards was done by the Carr & Andrews Corporation. Iron railings were furnished and placed upon the outer sidewalk girders by P. J. Dinn & Co.

The work of removing the old bridge was commenced September 27, and the new bridge completed December 10, 1904.

The total cost of rebuilding the bridge was $19,370.62.

MISCELLANEOUS.

A survey was made of the ground around the monument on Dorchester Heights, South Boston, and a plan was made for an iron fence to inclose the monument.

An estimate was made for repairing the wharf on Governor's Island.

Estimates have been made of the cost of abolishing various grade crossings on the line of the Old Colony Railroad in Dorchester.

Respectfully submitted,

WILLIAM JACKSON,
City Engineer.

CITY ENGINEERS.

1850–1904.

E. S. CHESBROUGH, M. Am. Soc. C. E.,
November 18, 1850, to October, 1855.
(Died August 18, 1886.)

JAMES SLADE,
October 1, 1855, to April 1, 1863.
(Died August 25, 1882.)

N. HENRY CRAFTS,
April 1, 1863, to November 25, 1872.

JOSEPH P. DAVIS, M. Am. Soc. C. E.,
November 25, 1872, to March 20, 1880.
(Resigned March 20, 1880.)

HENRY M. WIGHTMAN, M. Am. Soc. C. E.,
April 5, 1880, to April 3, 1885.
(Died April 3, 1885.)

WILLIAM JACKSON, M. Am. Soc. C. E.,
April 21, 1885, to the present time.

APPENDICES.

Appendix A. — Table showing the widths of openings for vessels in all bridges provided with draws.

Appendix B. — Table of accident and other plans made for the Law Department from February 1, 1904, to February 1, 1905.

Appendix C. — Table of surveys, plans, and profiles made by the Surveying Division of the Engineering Department from February 1, 1904, to February 1, 1905.

Appendix D. — List of streets where frontages have been obtained for the Sewer Division of the Street Department, for Sewer Assessments, from February 1, 1904, to February 1, 1905.

Appendix E. — Engineering Department property schedule.

Appendix F. — Elevations referred to Boston City base.

Appendix G. — Engineering Department Annual Reports, 1867–1904.

Appendix H. — Engineering Department, Revised Ordinances.

Appendix I. — Meridian Line.

APPENDIX A.

Table showing the Widths of Openings for Vessels in all Bridges provided with Draws, in the City of Boston, January, 1905.

Name of Bridges.	Location.	Number of Openings.	Width.	
			Feet.	In.
Boston & Maine R.R., Eastern Division	Boston to Charlestown	1	39	8
" " " " "	Over Miller's river	1	35	8
" " " Southern Division (freight)	Boston to East Cambridge	1	39	10
" " " " " (passenger)	" " "	1	39	8
" " " Western Division	Boston to Charlestown	1	39	8
" " " " "	Over Miller's river	1	35	10
Broadway	Over Fort Point channel	1	42	7
Cambridge-st	Brighton to Cambridge	1	36	4
Canal	Boston to East Cambridge	1	36	0
Charlestown (Main channel)	Boston to Charlestown	2	50	0
" (North ")	" "		50	0
Chelsea (South Channel)	Charlestown to Chelsea	1	38	9
" (North ")	" "	1	60	0
Chelsea-st. (East Boston side)	East Boston to Chelsea	2	36	0
" (Chelsea side)	" "		36	0
Commercial-point	Dorchester	1	24	2
Congress-st. (Boston side)	Over Fort Point channel	2	43	3
" (South Boston side)	" " "		50	0
Dorchester-ave	" " "	1	41	6
Dover-st	" " "	1	37	4
Essex-st	Brighton to Cambridge	1	35	9

APPENDIX A. — *Concluded.*

NAME OF BRIDGES.	LOCATION.	NUMBER OF OPENINGS.	WIDTH.	
			Feet.	In.
Fitchburg R.R.	Boston to Charlestown	1	36	9
" " (for teaming freight)	" "	1	36	9
Grand Junction R.R.	Brighton to Cambridge	1	36	0
" " "	East Boston to Chelsea	1	49	0
Granite	Dorchester to Milton	1	36	0
Harvard (Boston side)	Boston to Cambridge	2	36	6
" (Cambridge side)	" "		36	10
L-st.	Over Reserved channel, South Boston	1	39	8
Malden	Charlestown to Everett	1	50	0
Meridian-st. (East Boston side)	East Boston to Chelsea	2	59	2
" (Chelsea side)	" "		59	0
Mt. Washington-ave. (Boston side)	Over Fort Point channel	2	42	2
" " (South Boston side)	" " "		50	0
Neponset	Dorchester to Quincy	1	36	0
N. Y., N. H. & H. R.R.	Over Fort Point channel	1	41	5
" " " Y-connection	" " "	1	41	10
" " " Old Colony Division	Dorchester to Quincy	1	35	7
North Beacon-st.	Brighton to Watertown	1	30	0
North Harvard-st.	Brighton to Cambridge	1	36	0
Prison-point	Charlestown to Cambridge	1	35	5
Summer-st.	Over Fort Point channel	1	50	0
Warren	Boston to Charlestown	1	36	0
West Boston	Boston to Cambridge	1	36	0
Western-ave	Brighton to Cambridge	1	36	0
"	Brighton to Watertown	1	35	10

APPENDIX B.

TABLE OF ACCIDENT AND OTHER PLANS MADE FOR THE LAW DEPARTMENT, FROM FEBRUARY 1, 1904, TO FEBRUARY 1, 1905.

Boston Proper.

Anderson street. Plan of street in front of No. 46.
Arch street. Plan of street in front of Compton building.
Ashburton place. Plan of street corner of Bowdoin street.
Astor street. Plan of street.
Atlantic avenue. Plan of street at Richmond street.
Atlantic avenue. Plan of street in front of No. 180.
Barton street. Plan of street in front of No. 5.
Batavia street. Plan of street near Hemenway street.
Battery street. Plan of street in front of No. 34.
Berkeley street. Plan of street in front of No. 50.
Blagden street. Plan of street in front of Athletic Club.
Boylston street. Plan of street in front of No. 48.
Boylston street. Plan of street in front of No. 355.
Broadway. Plan of street near Albany street.
Broadway. Plan of temporary foot-bridge.
Cambridge street. Plan of street corner of Lynde street.
Causeway street. Plan of street at Union Station.
Causeway street. Plan of street in front of No. 22.
Compton street. Plan of street in front of No. 29.
Court square. Plan of street in front of Nos. 35 and 36.
Court street. Plan of street in front of Nos. 35 and 37.
Court street. Plan of street in front of No. 91.
Columbus avenue. Plan of street in front of No. 345.
Columbus avenue. Plan of street in front of No. 352.
Columbus avenue. Plan of street in front of Nos. 368 and 370.
Columbus avenue. Plan of street at Northampton street.
Dorchester avenue. Plan of street opposite Mt. Washington avenue.
Eliot street. Plan of street at Carver street.
Eliot street. Plan of street in front of No. 60.
Exeter street. Plan of street in front of No. 9.
Franklin avenue. Plan of street between Cornhill and Brattle street.
Gray street. Plan of street in front of No. 29.
Hanover street. Plan of street in front of Nos. 335 and 337.
Hanover street. Plan of street corner of Union street.
Hanover street. Plan of street corner of Friend street.
Harrison avenue. Plan of street corner of East Newton street.

Howard street. Plan of street in front of No. 9.
Hudson street. Plan of street in front of No. 32.
Huntington avenue. Plan of street corner of Irvington street.
Huntington avenue. Plan of street corner of Irvington street.
Huntington avenue. Plan of street corner of Gainsborough street.
Kneeland street. Plan of street in front of No. 49.
Knox street. Plan of street at Ferdinand street.
Lenox street. Plan of street in front of No. 117.
Marshall street. Plan of street in front of No. 14.
Mason street. Plan of street corner of West street.
Melrose street. Plan of street in front of No. 21.
Merrimac street. Plan of street in front of Nos. 1 to 6.
Milford street. Plan of street in front of No. 41.
Milk street. Plan of street in front of Nos. 156 to 160.
Myrtle street. Plan of street in front of No. 135.
Norman street. Plan of school-house land.
Pembroke street. Plan of street in front of No. 67.
Pine street. Plan of street corner of Harrison avenue.
Province street. Plan of street in front of No. 34.
Shawmut avenue. Plan of street in front of Nos. 120 and 122
Shawmut avenue. Plan of street in front of No. 230.
Taylor street. Plan of street in front of No. 10.
Temple place. Plan of street in front of No. 52.
Tremont street. Plan of street corner of Winter street.
Tremont street. Plan of street corner of Mason street.
Tremont street. Plan of street corner of Boylston street.
Tremont street. Plan of street in front of Nos. 259 and 261.
Tremont street. Plan of street corner of Milford street.
Tremont street. Plan of street in front of No. 798.
Upton street. Plan of street in front of No. 15.
Village street. Plan of street in front of No. 56.
Waltham street. Plan of street in front of No. 95.
Washington street. Plan of street corner of West street.
Washington street. Plan of street in front of No. 362.
Washington street. Plan of street corner of Lovering place.
Washington street. Plan of street in front of No. 863.
Washington street. Plan of street in front of No. 1585.
Washington street. Plan of street in front of No. 1835.
Water street. Plan of street in front of No. 115.
Willard street. Plan of street in front of Nos. 18 and 20.

SOUTH BOSTON.

Broadway. Plan of street in front of No. 161.
Broadway. Plan of street near Emerson street.
C street. Plan of street in front of Nos. 199 and 201.
Columbia road. Plan of street at Old Harbor street.
D street. Plan of street in front of No. 98.
Dorchester avenue. Plan of street at Dorchester street.
Gold street. Plan of street in front of Nos. 229 to 233.
Telegraph street. Plan of street in front of No. 3.

East Boston.

Bennington street. Plan of street near Saratoga street.
Bennington street. Plan of street at Saratoga street.
Chelsea street. Plan of street in front of No. 105.
Decatur street. Plan of street in front of No. 4.
East Boston Ferry. Plan of gates.
Paris street. Plan of street in front of No. 137.
Paris street. Plan of street in front of No. 302.
Paris street. Plan of street corner of Porter street.

Charlestown.

Bow street. Plan of estates.
Bunker Hill street. Plan of street at Allston street.
Chelsea street. Plan of street at Bainbridge street.
City square. Plan of street at fountain.
Henley street. Plan of street near Main street.
Main street. Plan of street at Alford street.
Monument square. Plan of street at High school.

Roxbury.

Burnham street. Plan of street sewer.
Calumet street. Plan of street at Huntington avenue.
Dearborn street. Plan of street in front of No. 54.
Dudley street. Plan of street near Blue Hill avenue.
Elm Hill avenue. Plan of street near Howland street.
Hampden street. Plan of street near George street.
Kemble street. Plan of street in front of No. 27.
Townsend street. Plan of street in front of No. 252.
Tremont street. Plan of street at Comins school.
Warren street. Plan of street it front of No. 489.
Warren street. Plan of street in front of No. 646.
Warwick street. Plan of street corner of Windsor street.
Washington street. Plan of street in front of Nos. 2131 and 2123.
Winthrop street. Plan of street at Kearsarge avenue.

Dorchester.

Adams street. Plan of street near New Minot street.
Albion street. Plan of street corner of Dudley street.
Dorchester avenue. Plan of street in front of No. 1511.
Dudley street. Plan of street near Monadnock street.
Elmo street. Plan of street in front of No. 18.
Erie street. Plan of street in front of No. 46A.
Esmond street. Plan of street in front of No. 88.
Hamilton street. Plan of street at Columbia road.
Hancock street. Plan of street.
Norfolk street. Plan of street in front of No. 35.
Oakland street. Plan of street.

Rosewood street. Plan of street.
Stanwood street. Plan of street near Blue Hill avenue.
Westville street. Plan of street in front of No. 56.

WEST ROXBURY.

Centre street. Plan of street at Richards avenue.
Hyde Park avenue. Plan of street near Ashland street.
Oakview terrace. Plan of street in front of No. 7.
Thomas street. Plan of street in front of No. 25.
Washington street and Stony brook. Plan of.

BRIGHTON.

Cambridge street. Plan of street at High school.
Commonwealth avenue. Plan of street near Warren street.
Lake street. Plan of land at Washington street.
Western avenue. Plan of bridge between Cambridge and Boston.

APPENDIX C.

TABLE OF SURVEYS, PLANS AND PROFILES MADE BY THE SURVEYING DIVISION OF THE ENGINEERING DEPARTMENT FROM FEBRUARY 1, 1904, TO FEBRUARY 1, 1905.

BOSTON PROPER.

(North of Massachusetts avenue.)

Albany street, Oswego street to Broadway. Plan and profile for revised grade.

Albion street, Castle street to Paul street. Plan and profile for revised grade.

Albion street, Paul street to Dover street. Plan and profile for proposed grade.

Alley, West Newton street to Berwick park. Plan and profile for laying out and established grade.

Ash street, Bennet street to Nassau street. Plan and profile for proposed grade.

Beach street, Federal street to Atlantic avenue. Plan showing discontinuance.

Beacon street, Dartmouth street to Exeter street. Plan and profile for revised grade.

Bennet street, Washington street to Harrison avenue. Plan and profile for proposed grade.

Berkeley street, Cortes street to Chandler street. Plan and profile for revised grade.

Blackstone street, Hanover street to No. 149. Plan and profile for proposed grade.

Broad street, southeasterly side, Franklin street to Wharf street. Plan and profile for proposed grade.

Broad street, westerly side, Central street to Water street. Plan and profile for proposed grade.

Broadway, Curve street to Lehigh street. Plan and profile for revised grade.

Castle street. Plan and profile for revised grade.

Causeway street, southerly side, Friend street to Canal street. Plan and profile for proposed grade.

Cazenove street, at Columbus avenue. Plan and profile for revised grade.

Chandler street, Ferdinand street to Berkeley street. Plan and profile for revised grade.

Columbus avenue, Morgan street to Clarendon street. Plan and profile for revised grade.

Central street, southwesterly corner Broad street. Plan and profile for proposed grade.

Cooper street, North Margin street to Salem street. Plan and profile for proposed grade.

Court street, in front of Old Court-house and Nos. 49 and 51. Plan and profile for proposed grade.

Dartmouth street, Columbus avenue to Huntington avenue. Plan and profile for revised grade.

East Dedham street, Harrison avenue to Albany street. Plan and profile for proposed grade.

Emerald street. Plan and profile for proposed grade.

Federal street, Dewey square to Fort Point channel. Plan showing discontinuance.

Ferdinand street, railroad to Tremont street. Plan and profile for revised grade.

Franklin street, Broad street to Well street. Plan and profile for proposed grade.

Friend street, easterly corner Sudbury street. Plan and profile for proposed grade.

Gainsborough street, St. Botolph street to railroad. Plan and profile for laying out and establishing grade.

Gloucester street, Newbury street to Commonwealth avenue. Plan and profile for proposed grade.

Harrison avenue, Broadway to Lovering place. Plan and profile for revised grade.

Harwich street, Dartmouth street to Truro street. Plan and profile for revised grade.

Hawley street, Summer street to Franklin street. Plan and profile for proposed grade.

Haymarket square, westerly corner Washington street. Plan and profile for proposed grade.

Kneeland street, Federal street to Atlantic avenue. Plan showing discontinuance.

Lehigh street. Plan and profile for proposed grade.

Lime alley, Charter street to Commercial street. Plan and profile for revised grade.

McLean street. Plan and profile for proposed grade.

Middlesex street. Plan and profile for proposed grade.

Motte street. Plan and profile for revised grade.

Mt. Washington avenue, Federal street to Dorchester avenue. Plan showing discontinuance.

North Anderson street. Plan and profile for proposed grade.

Oneida street, at Albany street. Plan and profile for revised grade.

Paul street, Tremont street to Albion street. Plan and profile for revised grade.

Pinckney street. Plan showing frontages.

Public Garden, southwesterly corner. Plan showing paths, etc.

Rollins street, Washington street to Harrison avenue. Plan and profile for proposed grade.

Seneca street, Albany street to hollow. Plan and profile for revised grade.

Shawmut avenue, Corning street to Castle street. Plan and profile for revised grade.

South Ferry and Lewis wharf. Plan showing property lines, etc.

Tremont street, Corning street to Lucas street. Plan and profile for revised grade.

Village street, Castle street to Paul street. Plan and profile for revised grade.

Village street, Paul street to Compton street. Plan and profile for proposed grade.

Washington street, westerly side, Haymarket square to Friend street. Plan and profile for proposed grade.

Washington street, at Williams court. Plan and profile for proposed grade.

Washington street, Corning street to Cobb street. Plan and profile for revised grade.

Washington street, Rollins street to Waltham street. Plan and profile for proposed grade.

Water street, northeasterly corner Broad street. Plan and profile for proposed grade.

Way street. Plan and profile for proposed grade.

Well street, Franklin street to Wharf street. Plan and profile for proposed grade.

West Newton street, Tremont street to Columbus avenue. Plan and profile for proposed grade.

Wharf street, Broad street to India street. Plan and profile for proposed grade.

Winthrop square. Plan showing grand stand for Grand Army of Republic.

SOUTH BOSTON.

Columbia road, between I street and Q street. Plan showing estates for assessment.

East Sixth street, between P street and Q street. Plan for sidewalk assessment.

Frederick street, between West Ninth street and Old Colony avenue. Plan and profile showing revised grade.

Frederick street, between West Ninth street and Old Colony avenue. Plan for sidewalk assessment.

K street, between East Ninth street and Columbia road. Plan and profile showing established grade.

P street, northerly from East First street. Survey to determine line of street.

P street, between East Sixth street and Columbia road. Plan for sidewalk assessment.

EAST BOSTON.

(Including Breed's Island.)

Bennington street, Chelsea street, to and across Orleans street. Plan and profile for revised grade.

Bremen street, Putnam street to Curtis street. Plan and profile for revised grade.

Bremen street, Sumner street to Marion street. Plan and profile for grade.

Chelsea street, Bennington street to Shelby street, southerly side. Plan and profile for revised grade.

Chelsea street, at Curtis street. Plan and profile for revised grade.

Cottage street, Gove street to Prescott street. Plan and profile for laying out and established grade.

Curtis street, Chelsea street to Pope street. Plan and profile for revised grade.

Everett street, at Orleans street. Plan and profile for revised grade.

Maverick square, southeasterly side. Plan and profile for revised grade.

Maverick street, Maverick square to Frankfort street. Plan and profile for revised grade.

Murray court, at Orleans street. Plan and profile for revised grade.

Neptune road, Bennington street to Lubec street. Plan and profile for revised grade.

Orleans street, Webster street to Gove street. Plan and profile for revised grade.

Orleans street, at both sides of Porter street. Plan and profile for revised grade.

Orleans street, at both sides of Prescott street. Plan and profile for revised grade.

Orleans street, Bennington street, to and across Neptune road. Plan and profile for revised grade.

Pope street, at Curtis street. Plan and profile for revised grade.

Porter street, Chelsea street to Lubec street. Plan and profile for revised grade.

Prescott street, Chelsea street to Lubec street. Plan and profile for revised grade.

Saratoga street, Chelsea street to Swift street. Plan and profile for revised grade.

Saratoga street, Bennington street to Boston, Revere Beach & Lynn Railroad. Plan and profile for revised grade.

Sumner street, Maverick square to Cottage street. Plan and profile for revised grade.

Webster street, Lewis street to and across Orleans street. Plan and profile for revised grade.

(*New street*), Chelsea street to Bremen street. Plan and profile for revised grade.

CHARLESTOWN.

Arlington avenue, between Alford street and Fred street. Plan for sidewalk assessment.

Beach street, corner Main street. Plan and profile for proposed grade.

Benedict street, between Lawrence street and Rutherford avenue. Plan and profile for proposed grade.

Chelsea street, between City square and Bainbridge street. Plan and profile for proposed widening.

Dorrance street, between Arlington avenue and Main street. Plan and profile for proposed grade.

Main street, corner Alford street, at Charlestown playground. Plan and profile for proposed grade.

Polk street, between Bunker Hill street and Medford street. Plan and profile for proposed grade.

Russell street, between Auburn street and Sullivan street. Plan and profile for proposed grade.

ROXBURY.

(South of Massachusetts Avenue.)

Alley, between Kendall street and Sawyer street. Plan and profile for laying out and established grade.

Bellevue street, near Brookline avenue, northerly side. Plan and profile of driveways.

Bromley park, Bickford street to Albert street. Plan and profile for revised grade.

Bryant street. Plan and profile for proposed grade.

Camden street, Columbus avenue to railroad. Plan and profile for revised grade.

Connolly street, off Fellows street. Plan and profile for laying out and established grade.

Hampden street. Plan showing buildings.

Hunneman street, southerly corner Harrison avenue. Plan showing fences, buildings, etc.

Huntington avenue and Worthington street, at Park entrance. Plan of land taken for school purposes.

Iroquois street, Wait street to Fisher avenue. Plan and profile for proposed extension.

Kearsarge avenue. Plan and profile for proposed grade.

Linden Park street, Roxbury street to Linden avenue. Plan and profile for proposed grade.

Massachusetts avenue, at southerly corner Newbury street. Plan and profile for revised grade.

Mellen street, Fisher avenue to Iroquois street extension. Plan and profile for proposed grade.

Perrin street. Plan of land taken for school purposes.

Sachem street, Hillside street to Iroquois street. Plan and profile for proposed grade.

St. Stephen street, Gainsborough street to Bryant street. Plan and profile for proposed grade.

Tremont street, Northampton street to Kendall street. Plan and profile for proposed grade of tracks.

Whiting street, southeasterly side, Winthrop street to Moreland street. Plan and profile for proposed grade.

Wyman street, Lamartine street to Chestnut avenue. Plan and profile for proposed grade.

BOSTON HARBOR.

Gallop's Island. Plan of a portion, showing buildings and levels on ground.

DORCHESTER.

Bullard street, Mt. Bowdoin avenue to Rosseter street. Plan and profile for revised grade.

Clarkson street, Hamilton street to Quincy street. Plan for sidewalk assessments.

Claybourne street, Bowdoin street to Tonawanda street. Plan and profile for laying out and established grade.

Crescent avenue, Newport street to New York, New Haven and Hartford railroad. Plan and profile for relocation.

Floyd street, Blue Hill avenue to Callender street. Plan and profile for laying out and established grade.

Hamilton street, Bowdoin street to Columbia road. Plan for sidewalk assessments.

Norfolk avenue, East Cottage street to Marshfield street. Plan for sidewalk assessment.

Michigan avenue, Columbia road to Erie street. Plan and profile for revised grade.

Page terrace, Bradshaw street to Page street. Plan and profile for proposed grade.

Taylor street, Water street to New York, New Haven and Hartford railroad. Plan and profile for laying out and established grade.

Wales street, Blue Hill avenue to Harvard street. Plan and profile for proposed grade.

Washington street, Euclid street to Torrey street. Plan and profile for proposed grade.

WEST ROXBURY.

Baker street. Plan and profile showing encroachment of fence and condition of street.

Canterbury street, between Poplar street and the railroad bridge. Plan and profile to fix line and grade.

Centre street, South street to Spring street. Plan and profile for relocation and established grade.

Florence street, Bourne street to Hyde Park avenue. Plan and profile showing proposed laying out and established grade.

Hyde Park avenue, from Ashland street 250 feet southerly. Plan showing estates for assessment.

Hyde Park avenue, Nos. 91 to 93. Plan showing encroachment of house.

Hyde Park avenue, westerly side between Walk Hill street and the cemetery. Plan showing levels on the line of widening.

John A. Andrew street. Plan and profile showing existing edgestone.

Poplar street, between Sycamore street and Washington street. Plan showing estates for sidewalk assessment.

Poplar street, Washington street to Sycamore street. Plan and profile of street to fix grade.

Proctor street, Fairview street to Walter street. Plan and profile showing proposed laying out and established grade.

School street, between Amory street and Arcadia street. Plan and profile of edgestone.

Sheldon street, near Prospect avenue. Plan showing gutters to fix grade.

Spring street, at the Dedham line. Plan and profile of the bridge over the Charles river.

BRIGHTON.

Brighton avenue, No. 95. Plan for sidewalk assessment.

Cambridge street, Nos. 382, 390, 432 and 416. Plan for sidewalk assessment.

Commonwealth avenue, at Cottage Farm. Plan and profile of edgestone to revise grade.

Corey road, Washington street to the Brookline line. Plan showing estates for assessment.

Corey road, Washington street to Warren street. Plan and profile showing proposed extension, laying out and established grade.

APPENDIX D.

LIST OF STREETS WHERE ESTATE MEASUREMENTS HAVE BEEN OBTAINED FOR THE SEWER DIVISION OF THE STREET DEPARTMENT FOR SEWER ASSESSMENTS, FROM FEBRUARY 1, 1904, TO FEBRUARY 1, 1905.

BOSTON PROPER.

(North of Massachusetts avenue.)

Albion street. Compton street to Castle street.
Hale street extension. Additional estates.
North street. Blackstone street to North Centre street.
Village street. Dover street to Compton street.

CHARLESTOWN.

Arlington avenue. Hamblen street to Somerville boundary line.
Austin street. Lawrence street to Washington street.
Hamblen street. Arlington avenue to George street.
High street. No. 44.
Rutherford avenue. City square to Chapman street.
Temple street. Dorrance street to Sherman street.

ROXBURY.

(South of Massachusetts avenue.)

Fort avenue. Highland Park avenue to Beech Glen street.
Oswald street. Calumet street to Hillside street.
Smith street. Whitney street to Huntington avenue.
Station street. Columbus avenue to New York, New Haven & Hartford railroad.
Vila street. From Kenwood road, westerly.
Warren street. Intervale street to Brunswick street.
Warren street. Moreland street to Walnut avenue.

DORCHESTER.

Adams street. Butler street to Medway street.
Bearse street. Five hundred and eighty-two feet from Park reservation.
Cedar street. Manchester street to Sanford street.
Darling street. Norfolk street to Southern avenue.
Eaton street. Off Tolman street.
Hiawatha road. Blue Hill avenue to Tileston avenue.
Levant street. Geneva avenue to Tebroc street.

Private way. Highland avenue to Sheridan street.
Rockwell street. Milton avenue to Washington street.
Rosewood street. From Oakland street.
South Eaton street. From Tolman street.
Tebroc street. Bowdoin street to Levant street.
Tileston avenue. Hiawatha road to Walk Hill street.
Washington street. Ashmont street to Burt street.

West Roxbury.

Alder street. Roslindale avenue to Bellevue avenue.
Auburn street. From Roslindale avenue 350 feet southeasterly.
Beech street. Cypress street to Eastbourne street.
Beech street. Washington street to Kittredge street.
Bellevue street. Oriole street to Lark street.
Berry street. Newburg street to Cornell street.
Birch street. Penfield street to Albano street.
Brook street. Orange street to Hill street.
Calder street. Blue Hill avenue to Canterbury street.
Cass street. Ashland avenue to Powell street.
Cedar street. Washington street to Bellevue avenue.
Centre street. Arundel street to Hewlett street.
Cornell street. Washington street to Eastbourne street.
Cypress street. Beech street to Bellevue avenue.
Dudley avenue. Amherst street to Metcalf street.
Fresno street. Alder street to Dudley avenue.
Kittredge street. Norfolk street to Mayo street.
Metropolitan avenue. Kittredge street to Clarendon park.
Metropolitan avenue. Washington street to Dudley avenue.
Meyer street. Catherine street to Mt. Hope Home.
Orange street. Beech street to West street.
Prospect avenue. Brown avenue to Sherwood street.
Rexhame street. Belgrade avenue to Colberg avenue.
Roslindale avenue. Beech street to Cornell street.
Roslindale avenue. Auburn street to beyond Alder street.
South street. Bradford terrace to Guernsey street.
South street. Walk Hill street to Asticou road.
Spalding street. South street to the railroad.
Spring street. Gardner street to Baker street.
Springville avenue. Spring street, northerly.
Summer street. Autumn street to Powell street.
Temple street. Vermont street to Keith street.

Brighton.

Cambridge street. North Harvard street southerly to Empire street.
Empire street. North Harvard street, southerly to Cambridge street.
Warren street. Commonwealth avenue, westerly about 1,100 feet.

APPENDIX E.

ENGINEERING DEPARTMENT PROPERTY SCHEDULE, MAIN OFFICE.

1 horse.
2 carriages.
1 sleigh.
2 harnesses.
3 robes.
Instruments for drawing.
Instruments for surveying, as follows:
2 Temple transits.
7 Buff & Berger transits.
1 Berger & Sons transit.
1 P. & R. Wittstock transit.
8 Gurley transits.
1 Keuffel & Esser level.
2 Temple levels.
4 Buff & Berger levels.
7 Gurley levels.
13 Boston rods.
4 New York rods.
10 Troy rods.
4 Philadelphia rods.
Apparatus for blue printing.
Cases for plans and books.
Reference library, 1,431 volumes.
14,287 plans engineering works, loose.
14 volumes plans engineering works, bound.
Photographs of engineering works.
1 microscope.
1 mercurial barometer.
1 aneroid barometer.
1 holosteric barometer.
1 set hydrometers.
1 hygrometer.
1 pair field glasses.
3 typewriters.
2 dynamometers.
1 pantagraph.
3 calculating machines.
1 volt meter.
1 comptometer.
2 thermophones.
2 cameras.
1 planimeter.
1 Bourdon pressure gauge.
1 Burroughs arithmometer.

SURVEYING DIVISION.

2 Temple transits.
1 Moody transit.
4 Buff & Berger transits.
2 Berger & Sons transits.
1 Buff & Buff transit.
1 Stackpole transit.
1 Troughton & Sims transit.
1 P. & R. Wittstock transit.
7 Buff & Berger levels.
1 Moody level.
18 Boston rods.
7 pipe rods.
31,808 plans.
3,770 lithographed maps.
1 pantagraph.
3 planimeters.
1 Federal blue printing machine, No. 10.

APPENDIX F.

Elevations referred to Boston City base. *(The City base is 0.64 feet below mean low tide.)

Feet.	
0.00	City base.
15.66	Highest tide, April 16, 1851.
15.45	Coping old dry dock, Charlestown Navy Yard, at left of entrance.
15.11	Coping old dry dock, Charlestown Navy Yard, new bench, over crowfoot.
12.34	Greatest elevation of high tide, per United States Tide Tables, October 29, 30, November 27, 1905 (11.7+.64) = 12.34.
8.54	Least elevation of high tide, per United States Tide Tables, July 26, 27, August 24, 1905 (7.9+.64) = 8.54.
2.24	Greatest elevation of low tide, per United States Tide Tables, June 23, August 24, September 21, 22, 1905 (1.6+.64) = 2.24.
—1.56	Least elevation of low tide, per United States Tide Tables, October 29, 1905 (—2.2+.64). = —1.56.
*0.64	Mean low tide.
5.00	Piles cut off for building.
10.00	Water works (old base) approximate tide-marsh level.
0.38	South Boston flats base (State).
9.82	South Boston base, formerly in use, but now abandoned.
—100.00	Metropolitan Sewerage base.
—100.00	Charles River Dam Commission base.
—100.00	Boston Transit Commission base.
—4.98	Cambridge City base.
0.64	Somerville City base.
0.60	Harbor and Land Commission base.

*Mean low water January, 1903. Computed from tidal observations taken during the year 1902, at the Charlestown Navy Yard, is 0.79 feet above Boston City base.

John R. Freeman in Report on Charles River Dam, 1903, page 570.

Navy Yard base above Boston base is	0.58
Mean High Water above Boston base	10.63
Mean Low Water above Boston base	0.79
Mean range of tide	9.84
Mean Sea Level above Boston base	5.71

Definition of Boston City base: Boston City base is a datum plane 15 feet above the average height of the sill of the Charlestown Dry Dock. (Page 552.)

The Metropolitan Park and Water Commissions, Brookline, Newton, Waltham and Watertown also use the Boston City base.

The following tidal records may be of interest:

High Tides.

[Plane of reference, Boston City Base.]

Feet.	Date.	Where taken.	By Whom.
14.12	Jan. 23, 1898	Mt. Washington-avenue bridge	A. B. Corthell.
15.20	Nov. 27, 1898	Neponset bridge, Dorchester	Joseph Dolan.
15.11	Nov. 27, 1898	Commercial Point, Dorchester	B. K. Berg.
15.27	Nov. 27, 1898	Fox Point, Dorchester	H. E. Stevens.
15.00	Nov. 27, 1898	Fort Point channel R.R. bridge	L. B. Bidwell.
14.97	Nov. 27, 1898	Mt. Washington-avenue bridge	A. B. Corthell.
14.98	Nov. 27, 1898	Long wharf	H. W. Johnson.
14.71	Nov. 27, 1898	Sargent's wharf	W. A. Rogers.
14.75	Nov. 27, 1898	South Ferry, East Boston	Gateman.
14.92	Nov. 27, 1898	Jeffrey's Point, East Boston	A. A. Martin.
15.00	Nov. 27, 1898	Deer Island, Met. sewer station	J. B. Black.
14.77	Nov. 27, 1898	Charles-river bridge	M. G. Woodward
14.94	Nov. 27, 1898	Warren bridge	Drawtender.
14.75	Nov. 27, 1898	West Boston bridge	M. F. Corkery.
14.74	Nov. 27, 1898	Essex-street bridge	Howard Burgess.
15.04	Nov. 27, 1898	North Harvard-street bridge	W. T. Pierce.
13.72	Nov. 8, 1900	Malden bridge	F. P. Spalding.
13.95	May 20, 1901	Malden bridge	F. P. Spalding.
14.14	Nov. 25, 1901	Savin Hill, Dorchester	M. Edmonds.
14.40	Nov. 25, 1901	Mt. Washington-avenue bridge	R. G. Baker.
14.25	Nov. 25, 1901	Summer-street bridge	T. H. Sexton.
14.16	Nov. 25, 1901	South Ferry, City Proper	J. H. Edmonds.
14.17	Nov. 25, 1901	South Ferry, East Boston	J. H. Edmonds.
14.17	Nov. 25, 1901	Jeffrey's Point, East Boston	W. F. Ryder.
14.10	Nov. 25, 1901	Deer Island, Met. sewer station	Self-recording gage.
14.11	Nov. 25, 1901	North Ferry, East Boston	J. H. Edmonds.
14.21	Nov. 25, 1901	North Ferry, City Proper	F. P. Spalding.
14.23	Nov. 25, 1901	Malden bridge	H. H. McNerlin.
13.60	Dec. 14, 1902	North Ferry, City Proper	J. H. Edmonds.
13.00	Feb. 17, 1903	North Ferry, City Proper	J. H. Edmonds.
13.40	Jan. 14, 1904	North Ferry, City Proper	J. H. Edmonds.
13.00	Feb. 1, 1904	North Ferry, City Proper	J. H. Edmonds.

High Tides — Concluded.

Feet.	Date.	Where taken.	By Whom.
13.10	Mar. 1, 1904	Mt. Washington-avenue bridge.....	Boston Terminal Co.
13.10	Mar. 3, 1904	Mt. Washington-avenue bridge.....	Boston Terminal Co.
13.20	Jan. 4, 1905	North Ferry, City Proper.....	J. H. Edmonds.
15.27	Jan. 25, 1905	Milton bridge, Dorchester.....	Tide mark.
15.00	Jan. 25, 1905	Neponset bridge, Dorchester.....	Aug. Dennison.
15.00	Jan. 25, 1905	Commercial Point, Dorchester.....	B. K. Berg.
14.80	Jan. 25, 1905	Savin Hill, Dorchester.....	Michael Edmonds.
15.00	Jan. 25, 1905	L-street bath-house, South Boston.....	M. F. Kelley.
14.86	Jan. 25, 1905	L-street bridge, South Boston.....	D. J. Lane.
14.70	Jan. 25, 1905	Mt. Washington-avenue bridge.....	Boston Terminal Co.
14.78	Jan. 25, 1905	Roxbury Canal, at Massachusetts ave...	Thomas Murphy.
14.79	Jan. 25, 1905	South Bay, at Massachusetts avenue....	Tide mark.
14.70	Jan. 25, 1905	North Ferry, City Proper.....	J. H. Edmonds.
14.80	Jan. 25, 1905	Charlestown bridge, City Proper.....	H. A. Bolan.
14.81	Jan. 25, 1905	Cambridge bridge, City Proper.....	M. G. Woodward.
14.78	Jan. 25, 1905	Essex-street bridge, Brighton.....	Howard Burgess.
15.36	Jan. 25, 1905	North Beacon-street bridge, Brighton...	Tide mark.
14.70	Jan. 25, 1905	Chelsea bridge, Charlestown.....	J. E. Murray.
14.70	Jan. 25, 1905	Malden bridge, Charlestown.....	F. P. Spalding.
14.70	Jan. 25, 1905	Atlantic Works, East Boston.....	N. B. Kelley.
14.70	Jan. 25, 1905	Jeffreys Point, East Boston.....	A. A. Martin.
14.70	Jan. 25, 1905	Prescott st., at Cottage st., East Boston..	J. E. Carty.
14.80	Jan. 25, 1905	Orient Heights, East Boston.....	Tide mark.
14.70	Jan. 25, 1905	Chelsea-street bridge, East Boston.....	Angus McDonald.
14.70	Jan. 25, 1905	Meridian-street bridge, East Boston.....	Daniel McFarland.
14.70	Jan. 25, 1905	Deer Island, Met. sewer station.....	Self-recording gage.
14.70	Jan. 25, 1905	Moon Island, main drainage outlet.....	Self-recording gage

Low Tides.

5.60	Nov. 27, 1898	Deer Island, Met. sewer station.....	Self-recording gage.
—2.94	Feb. 3, 1900	South Boston station, Edison Electric...	D. A. Harrington.
—3.50	Feb. 1, 1900	Deer Island.....	Self-recording gage.
—3.00	Feb. 4, 1904	Deer Island.....	Self-recording gage.

APPENDIX G.

ENGINEERING DEPARTMENT ANNUAL REPORTS, 1867–1904.

No. of Reports.	For the Year.	Year Published and No. City Document.	No. of Reports.	For the Year.	Year Published and No. City Document.
First	*1867	1868 — 22	Twenty-second	1888	1889 — 38
Second and Third	1868–69	1870 — 14	Twenty-third	1889	1890 — 39
Fourth	1870	1871 — 15	Twenty-fourth	*1890	Executive Department Report, Document 1, Part 1. 1891.
Fifth and Sixth	*1871–72	1873 — 23			
Seventh	*1873	1874 — 20			
Eighth	1874	1875 — 19	Twenty-fifth	1891	1892 — 11
Ninth	1875	1876 — 24	Twenty-sixth	1892	1893 — 10
Tenth	*1876	1877 — 15	Twenty-seventh	1893	1894 — 10
Eleventh	*1877	1878 — 20	Twenty-eighth	1894	1895 — 10
Twelfth	*1878	1879 — 22	Twenty-ninth	1895	1896 — 10
Thirteenth	*1879	1880 — 33	Thirtieth	1896	1897 — 10
Fourteenth	*1880	1881 — 25	Thirty-first	1897	1898 — 12
Fifteenth	1881	1882 — 52	Thirty-second	1898	1899 — 12
Sixteenth	1882	1883 — 53	Thirty-third	1899	1900 — 14
Seventeenth	*1883	1884 — 55	Thirty-fourth	1900	1901 — 14
Eighteenth	*1884	1885 — 54	Thirty-fifth	1901	1902 — 15
Nineteenth	*1885	1886 — 41	Thirty-sixth	1902	1903 — 15
Twentieth	*1886	1887 — 38	Thirty-seventh	1903	1904 — 15
Twenty-first	*1887	1888 — 39	Thirty-eighth	1904	1905 — 15
Special Report	1888	1888 — 117			

* Out of Print.

APPENDIX H.

(REVISED ORDINANCES, 1898, CHAPTER 16.) ENGINEERING DEPARTMENT.

SECTION 1. The Engineering Department shall be under the charge of the City Engineer, who shall be consulted on all matters relating to public improvements of every kind in respect to which the advice of a civil engineer or architect would be of service; shall, unless otherwise specifically provided, take charge of the construction of all public works of the city which properly come under the direction of a civil engineer; shall make such surveys, plans, estimates, statements, and descriptions, and take such levels and prepare such specifications and contracts as the mayor, the board of aldermen, the common council, any committee of the city council or of either branch thereof, the board of street commissioners, or any officer in charge of a department, may need in the discharge of its duties; shall, upon being notified by the superintendent of streets, supervise all repairs on the bridges of the city used as highways which affect the safety of the structures, and shall, when required by the mayor or any officer in charge of a department, measure the work done by contract for the city, and certify to the results of such measurement. Said engineer shall have the custody of all surveys and plans relating to the laying out, locating anew, altering, widening and grading of streets; and his office shall be deemed to be the office of the surveyor of highways.

SECT. 2. Said engineer shall, in his annual report, include a report upon the safety and completeness of all ponds, basins and reservoirs under the charge of the water department, and of all bridges within the city limits used as highways.

(Stat. 1870, Chap. 337 — Stat. 1895, Chap. 449, par. 21.)

APPENDIX I.

MERIDIAN LINE.

In 1870 an act was passed by the Massachusetts Legislature requiring each land surveyor in the State at least once in every year to adjust and verify his compass by the meridian line established in the county wherein his surveys were to be made.

A meridian was marked by stone monuments and a book of record kept by a custodian designated by the County Commissioners.

The law compelling surveyors to test their compasses annually was modified in 1875, so that surveyors who did not use the compass in turning angles were relieved from the penalty attaching to the violation of the original act.

The meridian posts for the County of Suffolk were placed on the southerly portion of the "Parade Ground," on Boston Common. They are granite posts, three in number, placed 200 feet apart, are eighteen inches square at the base, one foot square at the top, and eight feet long, being firmly set in a bed of concrete with their tops originally just below the surface of the ground.

A stone curb was placed even with the surface of the ground over the top of each post, with a metallic composition cover.

The surface of that part of the Common where the posts are set was raised several feet in 1897, the posts being protected by building a brick manhole around each stone, the posts being accessible by the removal of the manhole cover.

As the cover and cap of the manholes are made of iron, it is now necessary to set up the compass in the production of the line marked by the monument to avoid local attraction. The point selected has been 290 feet north of the northerly stone.

The following table gives the number of tests for each year with the average readings:

YEAR.	Number of Readings.	Average of Readings West of North.	YEAR.	Number of Readings.	Average of Readings West of North.
1871	9	10-53-46	1888	3	11-40-57
1872	8	11-09-47	1889	–	
1873	3	11-07-53	1890	7	11-39-56
1874	3	11-11-40	1891	4	11-49-30
1875	3	10-58-33	1892	–	
1876	2	11-13-00	1893	1	12-32-20
1877	8	11-12-35	1894	–	
1878	13	11-28-56	1895	–	
1879	4	11-35-15	1896	–	
1880	7	11-34-53	1897	8	12-04-37
1881	3	11-28-23	1898	6	12-34-34
1882	5	11-36-18	1899	–	
1883	5	11-42-04	1900	8	12-33-45
1884	6	11-46-13	1901	–	
1885	8	11-43-12	1902	13	12-44-44
1886	4	11-39-58	1903	8	12-43-42
1887	14	11-51-54	1904	4	12-33-45

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